Document 51-2

Ti-tan (tit'n) n. [Gk.] 1. Gk. Myth. One of a family of giants, the children of Uranus and Gaea, who sought to rule heaven and were overthrown and supplanted by the family of Zeus. 2. titan. A person

ti-tan-lc' (fi-tàn'lk) adj. 1. a. Having great stature or enormous strength: HUGE b. Enormous in scope, power, or influence. 2. Titanic. Of or relating to the Titans. —ti-tan'i-cal-ly adv. ti-tan-ic' (fi-tàn'lk, -tà'n'lk, ti) adj. Relating to or containing tita-

nium, esp. with valence 4.

titanic acid n. 1. A white, powdered inorganic acid, H₂TiO₃, derived from an acid solution of titanates and used as a mordant. 2. Titanium dioxide.

ti-tan-if-er-ous (tit'n-ll'or-os) adj. Containing or yielding the el-

Ti-tan-iam (iit'n-iz'om) n. Defiance of and revolt against the established order or authority.

ti-tan-ite (iit'n-it') n. [G. Titanit.] Mineral. Sphene.

ti-ta-ni-tre (nr n-r. / n. (c. 11tamt.) ministal, Sphene.

ti-ta-ni-tim (ti-ta' nō-am, ti-) n. [NLat. < Gk. Titan, Titan.] Symbol Ti A strong, low-density, highly corrosion-resistant, lustrous white metallic element used in alloys requiring low weight, strength, and high-temperature stability, atomic number 22, atomic weight 37.00

titanium dioxide n. A white powder, TiO, used as an exceptionally opaque white pigment.

ally opaque white pigment.

titanium white n. Thanium dioxide used as a paint pigment with
great covering power and durability.

ti-tan-o-there (ti-tan'o-thir') n. [NLat. Thanotherium: Ck. Titan, Tiun + Gk. thitian, little beast < then, beast.] An extinct herbivorous mammal of the genus Brontotherium and related genera, of
the Eocene and Oligocene epochs, resembling the rhinoceros.

ti-tan-ous (ti-tan'os, -tā'nos, ti-, tit'n-) adi. Relating to or containing titanium, esp. with valence 3.

ti-bit (tit'bit') n. var. of Tidbit.

ti-ter also ti-tre (ti'tot) n. [Fr. < OFr., title.] 1. The concentration
of a substance in solution or the strength of such a substance determined by titration. 2. The minimum volume needed to cause a par-

mined by titration. 2. The minimum volume needed to cause a particular result in titration.

ticular result in titration.

tit for tut n. [Alteration of tip for tap.] Repsyment in kind.

tithe (tith) n. [ME < OE tioo.] I. A tenth part of one's annual income, either in kind or money, contributed voluntarily for charity or

due as a tax for the support of the clergy or church. 2. A tax or as
essment of one tenth. 3. a, A tenth part. b. A very small part. —v.

tithed, tith-ing, tithes. —vr. 1. To contribute or pay a tenth part
of (one's annual income). 2. To levy a tithe on. —vi. To pay a tithe.

—tith'a-ble (ti'th-ba) adj. —tith'er (ti'thn') n.

tith-ing (ti'thing) n. 1. The act of levying or paying tithes. 2. A

tithe. 3. An administrative division consisting of ten householders in

the old English system of frankoledge.

tithe. 3. An administrative division consisting of ten householders in the old English system of frankpledge.
ti-ti'l(i'ti', te'\te'\n. [Orig. unknown.] A New World shrub of the genus Cyrillo and related genera, esp. C. racemiflora of warm swamps, with leathery leaves, white flower clusters, and yellow fruit.
ti-ti'l(te'te') n. [Sp. perh. of Tupian orig.] A small, long-tailed South American monkey of the genus Callicebus.



titi? 2-4 feet including tail

ti-tinn (tish'an) n. [After Tition (1477-1576), from his frequent use of the color in his paintings.] A brownish orange.—ti'tian adj.
tit-il-late (tit'l-it') vr. -lat-ed, -lat-ing, -lates. [lat titillare, titillare, to titick.] I. To stimulate by touching or tickling lightly. 2.
To excite agreeably.—tit'il-lat'ing-ly adv.—tit'il-la'tion n.
—tit'il-la'tive adj.

tit-lark (tit/lark') n. [TIT(MOUSE) + LARK.] The pipit.
ti-tle (tit'l) n. [ME < OFr. < Lat. titulus.] 1. An identifying name given to a book, play, film, musical composition, or work of art. 2. A general or descriptive heading, as of a book chapter. 3. a. Written mat-

so boot on out th thin th this deut drurge y young yoo abuse zh vision a about, item, edible, gallop, circus

ter included in a movie or in a television show to give credits. b. The ter included in a movie or in a television show to give credits. b. The subtitle in a movie. 4. a. The heading that names a legal document or statute. b. The heading or caption of a legal document in a court proceeding. 5. A division of a law book, declaration, or bill, generally larger than a section or article. 6. Law. a. The coincidence of all the elements that constitute the fullest legal right to control and dispose of property or a claim. b. The aggregate evidence that gives tise to a legal right of possession or control. c. The evidence of such means. d. The instrument constituting this evidence, as a deed. 7. Something that provides ground for or justifies a claim. 8. A formal appellation attached to a person or family by virtue of office, rank, hereditary privilege, noble birth, attainment, or 2s a mark of respect. 9. A descriptive appellation; spyttint, 10. A champinship in sports. 11. a. A source of angellation: EFFTHENT. 10. A championship in sports. 11. a. A source of income or area of work required of a candidate for ordination in the Church of England. b. A Roman Catholic church in or near Rome having a cardinal for its nominal head. —vr. -tled, -tling, -tles. To give a title to: confer a name on.

ti-tled (it'ld) adi. Having a title, esp. of nobility.
ti-tle-hold-er (tit'l-hôl'dar) n. One that holds a title, esp. for a

the names of the author and publisher, and the place of publication. titemouse (iti/mous') n., ph. -mice (-mis') [By folk ety. < ME titmoss: 'tit' (of Scand. orig.) + mose, titmouse < OE mdse, a kind of bird.] 1. Any of several small North American birds of the genus

Parus, having grayish plumage and a pointed crest. 2. TIT 1. ti-trant (ti-trant) n. A reagent used in titration.

ti-trate (il'uii') v. -trat-ed, -trating, -trates. [Fr. titrer < titre, titer.] - vt. To determine the concentration of (a solution) by titration. - vi. To perform titration. - ti'trat's-ble adj. tration. - vi. To perform titration. -ti'trat's.ble adj. -ti'tra'tor n. ti-tra-tion (ti-tra'shan) n. Determination of the concentration of a

substance in solution by adding to it a standard reagent of known con-centration in carefully measured amounts until a reaction of definite and known proportion is completed, as shown by a color change or by electrical measurement, followed by calculation of the unknown concentration

centration.

ii-tre (ti'tor) n. var. of TITER.

ti-tri-met-ric (ti'tre-mêt'rîk) adj. [TITR(ATION) + -METRIC.] Utilizing titration. — ti'tri-met'ri-end-ly adv.

tit-ter (tit'or) vi. -tered, -ter-ing, -ters. [Imit.] To utter a suppressed, nervous giggle. — tit'ter n. — tit'ter-er n. — tit'ter
- ti--ti---tit'ter-

ing-ly adv.
tit-tle (tit'l) n. [ME titel < Med. Lat. titulus < Lat., title.] 1. A small diacritical mark, as an accent, vowel mark, or dot over an i. 2. The tiniest bit : 10TA

A word history: The word tittle is a doublet of title, since both are derived from Latin titulus. The Latin word originally meant "label, title," but in Medieval Latin it also meant "a small diacritical mark." The meaning "the tiniest bit" is derived directly from the sense of the Medieval Latin word, It attained currency in English from the translation of Matthew 5:18, which is tendered in the King James Version as "For verily I say unto you, Till heaven and earth pass, one jot or one tittle shall in no wise pass from the law, till all be fulfilled." tittle-tat-tle (iit'l-lat'l) n. [Redup. of TATTLE.] Petty gossip. —vi.

tit-tie-tat-tie (lit'l-lit') n. [Redup. of TATTLE.] Petry gossip. —VI.
-tled, -tling, -tles. To engage in gossip.

tit-tup (lit'sp) vi. -tuped, -tup-ing, -tups or -tupped, -tupping, -tups. [Imit. of the sound of a horse's hoofs.] To move in a
lively, espering way: PRANCE. —tit'tup n.

tit-u-ba-tion (tlch's-bā'shap) n. [lat. titubatio, a staggering <
titubare, to stagger.] A stumbling or staggering gait characteristic of
some nervous disorders.

tit-u-lar (tich'o-lor) adj. [< Lat. titulus, title.] 1. Relating to, having the nature of, or constituting a title, 2. Existing as such in name only : NOMINAL < the titular head of the department> 3. s. Having a title. NOMINAL < (the titular head of the department) 3. 8. Having a title. Related to or coming from a title, as honors. 4. Having been derived from a title < the titular role in a Shakespearean play > 5. Of or designating one of the ancient churches in or near Rome from which a cardinal takes his title. — in. also tit-u-lar-y (tich/2-ler/2), pl. -ies. One holding a title. — tit-u-lar-ly adv.

Titus (ti/1s) n. — See table at Bible.

Titus (ti/1s) n. — See table at Bible.

Ti-11 (te 00) n. [OE Tiw.] Norse Myth. The Germanic god of war and

tiz-zy (tlz/e) n., pl. -zies. [Orig. unknown.] Slang. A state of nervous confusion or excitement, esp. over trivia.

II symbol for THALLIUM.

It symbol for Thallium.

Thin-git (tiling'git, tiling'it) n., pl. Thingit or gits. 1. A member of an American Indian people inhabiting the coastal areas of southern Alaska and northern British Columbia. 2. A language family of the Na-Dene phylum consisting only of the language of the Tlingit.

Tlymphocyte n. T cell.

Thymphocyte n. I ceil.

I'm symbol for thurium.

tme-sis (tmë/sis, më/-) n. [LLat. < Gk. tmësis, a cutting < temnain,
to cut.] Separation of the parts of a compound word by one or more
intervening words; e.g., where I go ever instead of wherever I go.

TNT [tě/èn-tě/] n. [r(nih (trao)t/oluens).] Trinitrotoluene.
to (tōō, to when unstressed) prep. [ME < OE tō.] 1. In a direction toward <went to town> <turned to us and spoke> <going back to the

EXHIBIT 8

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Preface

This new edition of The Merriam-Webster Dictionary is the fifth in a line of Merriam-Webster paperback dictionaries which began in 1947. It is based on and preserves the best aspects of preceding editions, but it also offers much that is new, drawing specifically on Merriam-Webster's Collegiate Dictionary, Tenth Edition, which was published after the appearance of the last paperback edition. Every entry and every section has been reexamined and revised in light of the most current information available. Every definition has been based on examples of actual use found in the Merriam-Webster citation file, which now includes more than 14,500,000

examples of English words used in context.

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chap · chargé d'affaires

1chap \1chap\ vb chapped; chap-ping: to dry and crack open usu. from wind and cold (chapped lips)

²chap n: a jaw with its fleshy covering.

usu, used in pl. chap n: FELLOW chapter

chapar-ral \sha-po-aral n 1: a dense impenetrable thicket of shrubs or dwarf trees 2: an ecological community esp. of southern California composed of shrubby plants chap-book \chap-bok\ n: a small

book of ballads, tales, or tracts cha-peau \sha-po\ n, pl cha-peaus \-poz\ or cha-peaux \-po, -poz\

[MF]: HAT chapel \"cha-pel\" n [ME, fr. OF chapel, fr. ML cappella, fr. LL cappa cloak; fr. the cloak of St. Martin of Tours preserved as a sacred relic in a chapel built for that purpose] 1: a private or subordinate place of worship 2: an assembly at an educational institution usu, including devotional exercises 3: a place of worship used by a Christian group other than an established church

chaper-on or chaper-one \sha-pa-eron\ n [F chaperon, lit., hood, fr. MF, head covering, fr. chape cape, fr. LL cappal 1: a person (as a matron) who accompanies young unmarried women in public for propriety 2: an older person who accompanies young people at a social gathering to ensure proper behavior chaperon or chaperone vb -oned; -on-

ing 1: ESCORT, GUIDE 2: to act as a chaperon to or for — chaper-on-age \-∎rō-nii\ *n*

chap-fall-en *chap-rfo-lən, *chap-\ adi 1: having the lower jaw hanging

loosely 2: DEJECTED, DEPRESSED chap-lain \chap-lain \n 1: a member of the clergy officially attached to a special group (as the army) 2: a person chosen to conduct religious exercises (as for a club) — chap-lain-cy \-se\ n chap-let \cha-plot\ n I : a wreath for the head 2: a string of beads: NECK-LACE

chap-man \"chap-mon\ n, Brit: an itin-

erant dealer: PEDDLER
chaps \shaps, chaps\ n pl [MexSp
chaparreras]: leather leggings resembling trousers without a seat that are

worn esp. by western ranch hands chap-ter \chap-tor\ n 1: a main division of a book 2: a body of canons (as of a cathedral) 3: a local branch of a society or fraternity

char char n, pl char or chars : any of a genus of trouts (as the common brook trout) with small scales

²char vb charred; charring 1: to burn or become burned to charcoal 2 : SCORCH

3char vb charred; charring: to work as a cleaning woman character *kar-ik-tor\ n [ME car138

acter, fr. MF caractère, fr. L characfer mark, distinctive quality, fr. Gk charakter, fr. charassein to scratch, engrave] 1: a graphic symbol (as a letter) used in writing or printing 2: a symbol that represents information: also: a representation of such a character that may be accepted by a computer 3: a distinguishing feature: ATTRIBUTE 4: the complex of mental and ethical traits marking a person or a group 5: a person marked by conspicuous often peculiar traits 6 : one of the persons in a novel or play?

REPUTATION 8: moral excellence

char-acter-is-tic \kar-ik-ta-ris-tik\ n

: a. distinguishing trait, quality, or

property ²characteristic adj: serving to mark in-

dividual character syn individual, peculiar, distinctive -- char-ac-ter-is-tical-ly \-ti-k(ə-)lê\ adv char-ac-ter-ize *kar-ik-tə-ırīz\ vb -ized;

-iz-ing 1: to describe the character of 2: to be a characteristic of — charac-ter-iza-tion \kar-ik-tə-rə- zā-shən\

cha-rades \sho-"radz\ n sing or pl : a game in which some of the players try to guess a word or phrase from the actions of another player who may not speak

char-coal \char-ikol\ n 1 : a porous carbon prepared from vegetable or animal substances 2: a piece of fine charcoal used in drawing; also: a drawing made with charcoal

chard *chard \ n : swiss Chard chard chardon-nay \shard-on-*a\ n, often cap [F]: a dry white wine made from

a single variety of white grape charge \charj\ n 1 : a quantity (as of fuel or ammunition) required to fill something to capacity 2: a store or accumulation of force 3: an excess or deficiency of electrons in a body 4 : THRILL, KICK 5: a task or duty imposed 6: CARE, RESPONSIBILITY 7: one given into another's care 8: instructions from a judge to a jury 9: cost, EXPENSE, PRICE; also: a debit to an account 10: ACCUSATION, INDICTMENT 11 ATTACK, ASSAULT

charge vb charged; charging 1: to load or fill to capacity 2: to give an electric charge to; also: to restore the actric charge to; also: tivity of (a storage battery) by means of an electric current 3: to impose a task or responsibility on 4: COMMAND, ORDER 5: ACCUSE 6: to rush against : rush forward in assault 7: to make liable for payment; also: to record a debt or liability against 8: to fix as a price — charge-able adi

charge-coupled device n: a semiconductor device used esp. as an optical sensor

char-gé d'af-faires \shār-ızhā-də-"far\
n, pl chargés d'affaires \-ızhā--izhāz-\ [F]: a diplomat who substitutes for an ambassador or minister

Gen • genetic engineering

Gen abbr Genesis Gen AF abbr general of the air force gen-darme \zhan-darm, jan-\ n [F, intended as sing. of gensdarmes, pl. of gent d'armes, lit., armed people] : a member of a body of soldiers esp. in France serving as an armed police

gen•der \"jen-dər\ n 1: any of two or more divisions within a grammatical class that determine agreement with and selection of other words or grammatical forms 2: sex 1

gene \ijen n : a part of DNA or RNAthat contains chemical information needed to make a particular protein (as an enzyme) controlling or influencing an inherited bodily trait or activity (as eye color) or that influences or controls the activity of another gene or genes - gen-ic *je-nik, *je-\

ge-ne-al-o-gy \rie-ne-"a-lo-je, rje-, -"a-\ n, pl -gies: PEDIGREE, LINEAGE; also : the study of family pedigrees ne-a-log-i-cal \uje-ne-ə-lä-ji-kəl, *Je-\ adj — gene-alog-i-cal-ly \-k(3-)lē\ adv
— gene-al-o-gist \-ijē-nē-\\^a-la-jist,

ije-; -\\^a-\ n

genera pl of GENUS

gener-al \\^je-nə-ral, \\^jen-ral\ adj 1: of
or relating to the whole 2: taken as a
whole 3: relating to or covering all in-

whole 3: relating to or covering all instances 4: not special or specialized 5: common to many (a ~ custom) 6: not limited in meaning: not specific 7: holding superior rank (inspector

→ syn generic, universal ²general n 1: something that involves or is applicable to the whole 2: a commissioned officer ranking next below a general of the army or a general of the air force 3: a commissioned officer of the highest rank in the marine corps — in general: for the most part

general assembly n 1: a legislative assembly; esp: a U.S. state legislature 2 cap G&A: the supreme deliberative body of the United Nations gen-er-al-i-sa-tion, gen-er-al-ise Brit var

of GENERALIZATION, GENERALIZE gen-er-a-lis-si-mo \uje-nə-rə-li-sə-umō\
n, pl -mos [It, fr. generale general]
: the chief commander of an army

gen-er-al-i-ty _je-nə-\ra-lə-t\\earra\, pl -ties 1: the quality or state of being general 2: GENERALIZATION 23: a vague or inadequate statement 4: the greatest

part: BULK gen-er-al-i-za-tion \je-nə-rə-lə-"zā- shən generalizing 2: a general statement,

law, principle, or proposition generalize \"je-nə-rə-līz, "jen-rə-\ vb -ized; -iz-ing 1: to make general 2: to draw general conclusions from 3: to reach a general conclusion esp. on the basis of particular instances 4: to ex-

tend throughout the body gen-er-al-ly \'jen-ra-le, 'je-na-\ adv 1 : in a general manner 2 : as a rule

general of the air force: a commissioned officer of the highest rank in the air force

general of the army: a commissioned officer of the highest rank in the army general practitioner n: a physician or veterinarian whose practice is not limited to a specialty general-ship, jen-

ral-\n1: office or tenure of office of a general 2: LEADERSHIP 3: military skill as a high commander

general store n: a retail store that carries a wide variety of goods but is not divided into departments

gen-er-ate \ je-nə-ırāt\ vb -at-ed: -ating: to bring into existence: PRODUCE create. originate, procreate, SYN spawn

gen-er-a-tion \ ije-no- ra-shon\ n 1: a body of living beings constituting a single step in the line of descent from an ancestor; also: the average period between generations 2: PRODUCTION

gen-er-a-tive *je-nə-rə-tiv, -rā-tiv\ adj : having the power or function of generating, originating, producing, or re-

producing (~ organs)
gen-er-a-tor \ je-n--rā-tər \ n : one that generates; esp: a machine by which mechanical energy is changed into electrical energy

ge-ner-ic \ jo- ner-ik \ adj 1: not specific : GENERAL 2: not protected by a trademark $\langle a \sim drug \rangle$ 3: of or relating to a biological genus — generic n — ge-

ner-i-cal-ly \-i-k(\(\pa\)-l\(\pa\)\ adv
gener-ous \frac{1}{j}e-n\(\pa\)-r\(\pa\)\ adj 1: free in giving or sharing 2: HIGH-MINDED, NO-BLE 3: ABUNDANT, AMPLE, COPIOUS SYD liberal, bountiful, munificent, open-handed — gen-er-os-i-ty \nje-n--rähanded — .gen-er-os-i-ty \ije-nə-"rä-sə-të\n — gen-er-ous-iy \"je-nə-rəs-lë\ adv — gen-er-ous-ness n gen-e-sis \ je-nə-səs\ n, pl -e-ses \-1 sēz\

the origin or coming into existence of something

Genesis n -- see BIBLE table

gene-splicing $\sl spli-sin \ n$: the technique by which recombinant DNA is produced and made to function in an organism

gene therapy n: the insertion of normal or altered genes into cells usu, to replace defective genes esp. in the treatment of genetic disorders

ge-net-ic \je-"ne-tik\ adj : of or relating to the origin, development, or causes of something; also: of or relating to genetics — genet-i-cal-ly \-ti-k(2-)le\ adv

genetic code n: the chemical code that is the basis of genetic inheritance and consists of triplets of three linked chemical groups in DNA and RNA which specify particular amino acids used to make proteins or which start or stop the process of making proteins

genetic engineering n: the directed alteration of genetic material by inter-

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inspect • instrument

in-spect \in-spekt\ vb: to view closely and critically : EXAMINE — in spection $\$ spek-shon $\$ n — in spector

inspector general n: the head of a sys-

tem of inspection (as of an army) in-spi-ra-tion \in-spa-ra-shan\n 1: the act or power of moving the intellect or emotions 2: INHALATION 3: the quality or state of being inspired; also : something that is inspired 4: an inspiring agent or influence - in-spira-tion-al \-shə-nəl\ adj

in-spire \in-spir\ vb in-spired; in-spiring 1: to influence, move, or guide by divine or supernatural inspiration 2 : exert an animating, enlivening, or exalting influence upon; also: AFFECT 3: to communicate to an agent supernaturally; also: bring out or about 4: INHALE 5: INCITE 6: to spread by indirect means - in-spir-er n

in-spir-it \in-spir-at\ vb : ENCOURAGE,

tion; institutional

in-sta-bil-i-ty \nin-sta-1bi-la-te\n: lack of steadiness; esp; lack of emotional or mental stability

in-stall or in-stal \in-stol\ vb in-stalled; in stalling 1: to place formally in office: induct into an office, rank, or RATE, INITIATE order 2: to establish in an indicated institute n 1: an elementary principle place, condition, or status 3: to set up for use or service - in-stal-la-tion \nin-stə-*lä-shən\n

in-stall-ment also in-stal-ment \in-"stol-

ment n: INSTALLATION 2 installment also installment n 1: one of the parts into which a debt or sum is divided for payment 2: one of several parts presented at intervals

in-stance \in-stans\ n 1: Instigation, REQUEST 2: EXAMPLE (for \sim) 3: an event or step that is part of a process or series syn case, illustration, sample, specimen

²instance vb in-stanced; in-stancing: to mention as a case or example

in-stant \in-stant \n 1 : MOMENT (the ~ we met) 2: the present or current month

²instant adj 1: URGENT 2: PRESENT, CURRENT 3: IMMEDIATE (~ relief) 4: premixed or precooked for easy final preparation (~ cake mix); also: immediately soluble in water (~ coffee)

in-stan-ta-neous \rin-stən-"tā-nē-əs\ adj : done or occurring in an instant or without delay - in·stan·ta·neous·ly adv

in-stan-ter \in-"stan-ter \ adv : at once in-stan-ti-ate \in-"stan-chē-sāt\ vb -ated: -at-ing: to represent (an abstraction) by a concrete example — instan-ti-a-tion \-i stan-che-a-shən\ n

in-stant-ly \in-stant-le\ adv : at once : IMMEDIATELY

in-state \in-*stat\ vb : to establish in a rank or office : INSTALL

in-stead \in-sted\ adv 1: as a substi-

tute or equivalent 2: as an alternative : RATHER

instead of prep : as a substitute for or alternative to

in-step \"in-step\n: the arched part of the human foot in front of the ankle

joint; esp: its upper surface in-sti-gate \"in-sto-agāt\ vb -gat-ed; -gatinstigate \"in-sta-agāt\ vb -gated; -gating: to goad or urge forward: Frovoke, incree \(\sim a \) revolt\) — instigation \sin-sta-agā-shan\ n — instigator \"in-sta-agā-tar\ n instill also instill \sin-astil\ vb instilled; instilleing 1: to cause to enter drop by drop 2: to impart gradually \"instinct \"in-astinkt\ n 1: a natural aptitude 2: a largely inheritable and unalterable tendency of an organism to

alterable tendency of an organism to make a complex and specific re-sponse to environmental stimuli without involving reason; also : behavior originating below the conscious level
— in-stinctive \in-stink-tiv\ adj in-stine-tive-ly adv

inst abbr 1 instant 2 institute; institut- instinct \in-stinkt, in-stinkt\ adj

: IMBUED, INFUSED

in-stinc-tu-al \in-stink-cho-wol\ adi
: of, relating to, or based on instinct in-sti-tute \in-sta-rtūt, -rtyūt\ vb -tut-ed; -tuting 1: to establish in a posi-tion or office 2: organize 3: inaugu-

recognized as authoritative; also, pl : a collection of such principles and precepts 2: an organization for the promotion of a cause: ASSOCIATION 3: an educational institution 4: a brief course of instruction on a particular field

in-sti-tu-tion \uin-stə-"tū-shən, -"tyū-\ n 1: an act of originating, setting up, or founding 2: an established practice, law, or custom 3: a society or corporation esp. of a public character (a charitable ~>; also : ASYLUM 3 — in-sti-tu-tion-al \-"tü-shə-nəl, -"tyü-\ adi in-sti-tu-tion-al-ize \-no-11z\ vb in-sti-tu-tion-al-ly adv

instrabbr 1 instructor 2 instrument; in-

strumental

in-struct \in- strakt\ vb [ME, fr. L instructus, pp. of instruere, fr. struere to build 1: teach 2: inform 3: to

give an order or a command to instruction \in-\frac{1}{2} \text{strok-shan} \ n 1 \text{: Lesson, precept 2 : command, order 3 pl : directions 4 : the action, practice. or profession of a teacher - in-struction-al \-shə-nəi\ adj

in-struc-tive \in-*strak-tiv\ adj : carry-

ing a lesson: ENLIGHTENING in-structor \in-strek-ter\ n: one that instructs; esp: a college teacher below professorial rank - in-struc-tor-

ship n in strument \"in-stra-mant\ n.1: a device used to produce music 2: a means by which something is done 3 a device for doing work and esp. precision work 4: a legal document

lockout · logrolling

back 2: a nut designed to lock itself when screwed tight

lock-out \-aut\ n: the suspension of work by an employer during a labor dispute in order to make employees accept the terms being offered lock-smith \-asmith\ n: one who makes

or repairs locks

lock-step \- step\ n : a mode of marching in step by a body of men moving in a very close single file

lock-up \-1-p\ n : JAIL lo-co \ lo-kō\ adj [Sp] slang : CRAZY, FRENZIED

lo-co-mo-tion \ulo-kə-\uno-shən\ n 1 ; the act or power of moving from

place to place 2: TRAVEL (as of an airplane)

loco-mo-tive \ilo-ko-'mō-tiv\ adj: of or 2log vb logged; log-ging 1: to cut (trees) relating to locomotion or a locomotive

²locomotive n: a self-propelled vehicle used to move railroad cars

lo-co-mo-tor \slo-kə-*mo-tər\ adj : of or relating to locomotion or organs used in locomotion

lo-co-weed \"lo-ko-wed\n: any of several leguminous plants of western No. America that are poisonous to livestock

lo-cus \"lo-kəs\ n, pl lo-ci \"lo-ısī\ [L] 1 : PLACE, LOCALITY 2: the set of all points whose location is determined by stated conditions

lo-cust \"lo-kəst\n1: a usu. destructive migratory grasshopper 2: CICADA 3: any of various leguminous trees; also: the wood of a locust

lo-cu-tion \lo-1kyu-shən\ n: a particular form of expression; also : PHRASE-

ology lode $\$ lod n: an ore deposit

lode-stone \-1ston\ n : an iron= containing rock with magnetic prop-

lodge \"lāj\ vb lodged; lodg·ing 1 : to . log·gia \"lō-jē-ə, "lò-jä\ n, pl loggias provide quarters for; also: to settle in a place 2: CONTAIN 3: to come to a rest and remain 4: to deposit for safekeeping 5: to vest (as authority) in an agent 6 : FILE (~ a complaint)

2lodge n 1: a house set apart for residence in a special season or by an employee on an estate; also': INN 2: a den or lair esp. of gregarious animals 3: the meeting place of a branch of a fraternal organization; also: the members of such a branch

lodger \lajor\n: a person who occupies a rented room in another's house lodging \lain n 1 : DWELLING 2 : a room or suite of rooms in another's house rented as a dwelling place usu, used in pl.

lodg-ment or lodge-ment *läj-ment\ n 1 : a lodging place 2: the act or manner of lodging 3: DEPOSIT loss \less\ n: a usu. yellowish

brown loamy deposit believed to be chiefly deposited by the wind loft loft n [ME, fr. OE, air, sky, fr.

ON lopt] 1 : ATTIC 2 : GALLERY (OFFIN

 \sim 3: an upper floor (as in a warehouse or barn) esp. when not parti-tioned 4: the thickness of a fabric or insulated material (as of a sleeping bag)

2 loft vb: to strike or throw a ball so that

it rises high in the air

lofty \ lof-te\ adj loft-i-er; -est 1 : NOBLE; also: Superior 2: extremely proud 3 : HIGH, TALL — loft-i-ly \"lof-tə-lē\ adv
— loft-i-ness \-tē-nes\ n

*log log, lag n 1: a bulky piece of unshaped timber 2: an apparatus for measuring a ship's speed 3: the daily record of a ship's progress; also: a regularly kept record of performance

for lumber; also: to clear (land) of trees in lumbering 2: to enter in a log 3: to sail a ship or fly an airplane for (an indicated distance or period of time) 4: to have (an indicated record) to one's credit: ACHIEVE — log-ger ∖ lo-gər, lä-\ n

3 log n : LOGARITHM

lo-gan-ber-ry \lo-gan-ber-e\n: a red= fruited upright-growing dewberry; also; its fruit log-a-rithm, lo-ge-ri-them, lä-\n; the

exponent that indicates the power to which a base is raised to produce a given number (the ~ of 100 to base 10 is 2 since 10² = 100) — log-arithmic \lò-ga-"rith-mik, «lä-\adj loge\"lozh\n 1 : a small compartment:

also: a box in a theater 2: a small partitioned area; also: the forward

section of a theater mezzanine log-ger-head \log-ger-head \log-ger-head \log-ger-head \law n: a large sea turtle of subtropical and temperate waters — at loggerheads in a state of quarrelsome disagree-

lö-je-əz, lo-jaz\: a roofed open gallery

log-ic \land lä-jik\ n 1: a science that deals with the rules and tests of sound thinking and proof by reasoning 2 : sound reasoning 3: the arrangement of circuit elements for arithmetical computation in a computer - legical \-ji-kəl\ adj — logi-cal-ly \-ji-k(2-)lē\ adv — logi-cian \lō-'ji-shən\

logistics \lo-"jis-tiks\ n sing or pl: the procurement, maintenance, and transportation of materiel, facilities, and personnel — logistic \-tik\ adj log-jam \log-jam, läg-\ n 1: a dead-locked jumble of logs in a water-

course 2: DEADLOCK logo \"lo-go\ n, pl log-os \-goz\: an identifying symbol (as for ad-

vertising)
logo-type *lo-go-tip, *lä-\ n : Logo
log-roll-ing \--ro-lin\ n : the trading of votes by legislators to secure favorable action on projects of individual interest

precentor • predigest

pre-cen-tor \pri-"sen-tor \ n : a leader of the singing of a choir or congregation pre-cept \ pre-rsept\ n: a command or principle intended as a general rule of action or conduct

pre-cep-tor \pri-*sep-tər, *prë-1sep-\ n

pre-ces-sion \pre-se-shon\ n : a slow gyration of the rotation axis of a spinning body (as the earth) — pre-cess \pre-ses\ vb — pre-cession-al \-se-

shə-nəl\ adi
precinct \ prē-i sinkt\ n 1: an administrative subdivision (as of a city): DIS-TRICT (police \sim) (electoral \sim) 2: an enclosure bounded by the limits of a building or place — often used in pl. 3 pl : ENVIRONS

pre-ci-os-i-ty \pre-shē-a-sə-tē\ n, pl -ties : fastidious refinement

pre-cious \"pre-shos\ adj 1 : of great value (~ jewels) 2: greatly cherished: DEAR (~ memories) 3: AFFECTED (~ language)

precipice \pre-sa-pas\n: a steep cliff pre-cipi-tan-cy \pri-si-pa-tan-se\n

: undue hastiness or suddenness pre-cip-i-tate \pri-i-si-po-i-tāt\ vb -tated; -tat-ing [L praecipitare, fr. praecipit-, praeceps headlong, fr. prae in front of + caput head] 1: to throw violently 2: to throw down 3 : to cause to happen quickly or abruptly (~ a quarrel) 4: to cause to separate from solution or suspension 5: to fall as rain, snow, or hail syn speed, accelerate, quicken, hasten, hurr

²pre-cip-i-tate \pri-*si-pə-tət, -#tāt\ n the solid matter that separates from

a solution or suspension

3pre-cip-i-tate \pri-"si-pa-tat\ : showing extreme or unwise haste : RASH 2: falling with steep descent; also - PRECIPITOUS — pre-cip-i-tate-ly

adv — pre-cip-i-tate-ness n pre-cip-i-ta-tion \pri-si-pə-"tā-shən\n 1 rash haste 2: the process of precipitating or forming a precipitate 3: water that falls to earth esp. as rain or snow; also: the quantity of this water pre-cip-i-tons \pri-si-p-t-s\ adi 1: PRE-CIPITATE 2: having the character of a precipice: very steep (a \sim slope); also: containing precipices (~ trails)
— pre-cip-i-tous ly adv

— pre-cip-i-tous-ly adv ma, pickle, quagmire, jam pré-cis \prā-'sē\n, pl pré-cis \-'sēz\[F] pred-i-cate \"pre-di-kət\n: the part of a

: a concise summary of essentials pre-cise \pri-sis\ adi 1 : exactly decurate: EXACT 3: conforming strictly to a standard : scrupulous -

cisely adv — pre-ciseness n pre-cision \pri-si-zhan\ n: the quality or state of being precise pre-clude \pri-skl\(\text{ud}\)\ vb pre-cluded; pre-cluding: to make impossible : BAR, PREVENT

pre-co-cious \pri-*kö-shəs\ adi praecoc-, praecox, lit., ripening early, fr. prae- ahead + coquere to cook

: early in development and esp. in mental development - pre-co-ciously adv — pre-coci-ty \pri-kä-sə-tē\n
pre-con-ceive \pri-kən-sēv\ vb : to
form an opinion of beforehand —
pre-con-cep-tion \-sep-shan\ n
pre-con-cep-tion \-sep-shan\ adj : ar-

ranged or agreed on in advance pre-con-di-tion \- di-shen\ vb : to put in

proper or desired condition or frame of mind in advance

pre-cook \pre-kuk\ vb : to cook partially or entirely before final cooking. or reheating

pre-cursor \pri-*kər-sər\ \hat{n} : one that precedes and indicates the approach of another: FORERUNNER

pred abbr predicate pre-da-ceous or pre-da-cious \pri-da-shas\adj: living by preying on others : PREDATORY

pre-date \"pre-"dat\ vb : ANTEDATE pre-da-tion \pri-da-shon\ n 1: the act of preying or plundering 2: a mode of life in which food is primarily obtained by killing and consuming ani-

pred-a-tor \"pre-do-tor\ n: an animal that lives by predation pred-a-to-ry \"pre-do-1tor-\(\bar{c}\) adj 1: of or relating to plunder (\simes warfare) 2: disposed to exploit others 3: preying upon other animals

pre-de-cease \pre-di-ses\ vb -ceased: -ceasing: to die before another per-

pre-de-ces-sor \ pre-de-se-ser, pre-\ n : a previous holder of a position to which another has succeeded

pre-des-ig-nate \(a)prē-"de-zig-nāt\ vb : to designate beforehand

pre-des-ti-na-tion *prē-*des-tə-*nāshon n: the act of foreordaining to an earthly lot or eternal destiny by divine decree; also: the state of being so forcordained pre-des-ti-nate \prē- des-tə-ınāt\ vb

pre-des-tine \pre-des-ton\vb: to settle

beforehand: FOREORDAIN
pre-de-ter-mine \pre-di-ter-men\ vb
: to determine beforehand

pred-i-ca-ble \ pre-di-kə-bəl \ adj : capa-ble of being predicated or affirmed pre-dic-a-ment \pri-\di-ko-mont\ n: a difficult or trying situation syn dilem-

sentence or clause that expresses what is said of the subject

fined or stated: DEFINITE 2: highly ac- 2predicate \ pre-do-1kat\ vb -cated; -cating 1: AFFIRM 2: to assert to be a quality or attribute 3: FOUND, BASE—pred-i-ca-tion \pre-d-i-kā-shən\n

predictation apre-do-ka-shan n
pre-dict pri-dikt vb: to declare in advance — pre-dict-abile-ity \-dik-tabi-la-te\ n — pre-dict-able \-dik-tabal\ adj — pre-dict-ably \-bie\ adv —
pre-diction \-dik-shan n
pre-digest \pre-di-jest vb: to simpli-

fy for easy use; also: to subject to artificial or natural partial digestion

reportable • reptile

clusions and recommendations - report-able adj

re-port-age \ri-"por-tij. esp for 2 areper-tazh, re-rpor-\n[F]1: the act or process of reporting news 2: writing intended to give an account of observed or documented events

report card n: a periodic report on a

student's grades

re-port-ed-ly \ri-"por-tod-le\ adv : ac-

cording to report reporter \ri-porter \n: one that reports; esp: a person who gathers and reports news for a news medium re-por-to-ri-al \re-par-tor-e-al\ adj

re-pose \ri-poz\ vb re-posed; re-pos-ing 1: to lay at rest 2: to lie at rest 3 to lie dead 4: to take a rest 5: to rest 2 reprieve n 1: the act of reprieving: the

for support : LE ²repose n 1: a state of resting (as after

exertion); esp : SLEEP 2 : eternal or heavenly rest 3 : CALM, PEACE 4 : cessation or absence of activity, movement, or animation 5: composure of

manner: Poise — re-pose-ful adj repose vb re-posed; re-posing 1: to

ment, or use

re-pository \ri-*pä-zə-itōr-ë\ n; pl -ries 1: a place where something is deposited or stored 2: a person to

whom something is entrusted
re-possess \re-po-zes\vb 1: to regain
possession of 2: to take possession of in default of the payment of installments due - re-pos-ses-sion \- ze-

rep-re-hend \re-pri-hend\ vb : to express disapproval of : CENSURE SYN criticize, condemn, denounce, blame, pan — rep-re-hen-sion \- hen-chən\ n
rep-re-hen-si-ble \- hen-sə-bəl\ adj : deserving blame or censure : CULPABLE

rep-re-hen-si-bly \-ble\ adv
rep-resent \-re-pri-zent\ vb 1: to present a picture or a likeness of: PORTRAY, DEPICT 2: to serve as a sign or symbol of 3: to act the role of 4: to stand in the place of : act or speak for 5: to be a member or example of : TYPIFY 6: to serve as an elected representative of 7: to describe as having a specified quality or character 8 to state with the purpose of affecting judgment or action

rep-re-sen-ta-tion\re-pri-zen-ta-shon\ n1: the act of representing 2: one (as a picture or image) that represents something else 3: the state of being represented in a legislative body; also : the body of persons representing a constituency 4: a usu, formal statement made to effect a change

\are-pri-*zen-ta-tiv\ 1rep-re-sen-ta-tive adj 1: serving to represent 2: standing or acting for another 3: founded on the principle of representation carried on by elected representatives (~ government) - rep-re-sen626

ta-tive-ly adv - rep-re-sen-ta-tive-ness

 2 representative n 1: a typical example of a group, class, or quality 2: one that represents another; esp : one representing a district in a legislative body usu. as a member of a lower house

repress \ri-pres\vb1: cure, subdue 2: RESTRAIN, SUPPRESS 3: to exclude from consciousness — repression \-"pre-shon\ n --- re-pres-sive \-"presiv\ adi

re-prieve \ri-*prev\ vb re-prieved; reprieving 1: to delay the punishment or execution of 2: to give temporary relief to

state of being reprieved 2: a formal temporary suspension of a sentence esp. of death 3: a temporary respite reperiemand \re-pro-mand\ n : a severe or formal reproof.

²reprimand vb: to reprove severely or

couse vo re-posed; re-posing 1: to re-print \(() re-print \(v) re-print \(

of printed matter
reprisal \ri-pri-zal\n: an act in retaliation for something done by another
reprise \ri-prez\n: a recurrence, renewal, or resumption of an action;

also: a musical repetition re-proach \ri- proch\ n 1: an expression of disapproval 2: DISGRACE, DIS-CREDIT 3: the act of reproaching REBUKE 4: a cause or occasion of blame or disgrace — re-proach-ful-fall adj — re-proach-ful-ly adv — reproach-ful ness n

reproach vb 1: CENSURE, REBUKE 2: to cast discredit on syn chide, admonish, reprove, reprimand — re-proachable adj

rep-ro-bate \"re-pro-ubat\ n 1 : a person foreordained to damnation 2: a thoroughly bad person : SCOUNDREL . reprobate adj

rep-ro-ba-tion \re-pro-ba-shon\ : strong disapproval : condemnation re-pro-duce \re-pro-dus, -dyus\ vb 1 to produce again or anew 2: to produce offspring — reproducible \di-sə-bəl, -dyū-\adj — reproduction \dak-shən\n — reproductive \- dək-tiv\ adi

re-proof \ri-\priif \ n : blame or censure for a fault

re-prove \ri-*pruv\.vb_re-proved; reproving 1: to administer a rebuke to 2: to express disapproval of syn reprimand, admonish, reproach, chide re-prov-er n

rept abbr report reptile Vicep-toly atili n [ME reptil, fr. MF or LL; MF reptile, fr. LL reptile, fr. L repere to crawl]: any of a large class of air-breathing scaly verte-brates including snakes, lizards, alligators, turties, and extinct related

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re-sis-tant \-tont\ adj : giving or capable of resistance

re-sis-tor \ri- zis-tər\ n: a device used to provide resistance to the flow of an

electric current in a circuit res-o-lute \"re-ze-1\"ut\ adj : firmly determined in purpose: RESOLVED syn steadfast, staunch, faithful, true, loyal. - res-o-lute-ly adv — res-o-luteness n

res-o-lu-tion \ re-zə- $l\ddot{u}$ -shən\ n 1: the act or process of resolving 2: the action of solving: also: SOLUTION 3: the

of a body of persons re-solve \ri-zalv\ vb re-solved; re-solving 1: to break up into constituent parts: ANALYZE 2: to distinguish between or make visible adjacent parts of 3: to find an answer to: solve 4 : DETERMINE, DECIDE 5: to make or pass a formal resolution — resolvable adi

²resolve n 1: fixity of purpose 2: some-

thing resolved

res-o-nance \"re-zə-nəns\ n 1: the quality or state of being resonant 2: a reinforcement of sound in a vibrating body caused by waves from another

resonant \-nont\ adj 1: continuing to or exhibiting resonance 3: intensified and enriched by or as if by resonance

- res-o-nant-ly adv res-o-nate \-.nāt\ vb -nat-ed; -nat-ing 1 : to produce or exhibit resonance 2 : REVERBERATE, RESOUND .

res-o-na-tor \-ina-tor\ n : something that resounds or exhibits resonance re-sorp-tion \re-"sorp-shan, -"zorp-\ n

the action or process of breaking down and assimilating something (as

resort \ri-zort\ n [ME, fr. MF, resource, recourse, fr. resortir to rebound, resort, fr. OF, fr. sortir to escape, sally] 1: one looked to for help: refuge 2: recourse 3: frequent or general visiting (place of \sim) 4: a frequently visited place: HAUNT 5: a place providing recreation esp. to vacationers

²resort vb 1: to go often or habitually 2 : to have recourse (~ed to violence) resound \ri-*zaund\vb 1: to become filled with sound: REVERBERATE, RING 2: to sound loudly

re-sound-ing adj 1: RESONATING, RESONANT 2: impressively sonorous (~ name) 3: EMPHATIC, UNEQUIVOCAL (a ~ success) — re-sound-ing-ly adv

resource \free_isors, ri-sors\n [F res-source, fr. OF ressourse relief, resource, fr. resourdre to relieve, lit., to rise again, fr. L resurgere, fr. reagain + surgere to rise] 1: a source of supply or support — usu, used in pl. 2 pl: available funds 3: a possi-

resistant · responsible

bility of relief or recovery 4: a means of spending leisure time 5: ability to meet and handle situations — remeet and handle situations — re-source-ful \ri-1sors-fel\ adj — resource-ful-ness n

resp abbr respective; respectively respect \ri-spekt\ n 1 : relation to something usu. specified: REGARD (in \sim to) 2: high or special regard: ESTEEM 3 pl: an expression of respect or deference 4: DETAIL, PARTICULAR—re-spect-ful \-fal\ adj — re-spect-ful - re-spect-ful-ness n lv adv -

quality of being resolute: FIRMNESS, 2 respect vb 1: to consider deserving of DETERMINATION 4: a formal statement expressing the opinion, will, or intent of a body of persons

13 aur — 1 respect vb 1: to consider deserving of high regard: ESTEEM 2: to refrain from interfering with (~ another's privacy) 3: to have reference to

: CONCERN — re-spect-er n
re-spect-able \ri-spek-ta-bal\ adi : worthy of respect : ESTIMABLE 2 : decent or correct in conduct: PROPER 3 : fair in size, quantity, or quality : MODERATE, TOLERABLE 4 : fit to be seen: PRESENTABLE — re-spect-a-bil-i-ty \-1.spek-tə-bi-lə-tē\ n — re-spectably \- spek-to-ble\ adv

re-specting prep: with regard to re-spective \-tiv\ adj: PARTICULAR, SEP-ARATE (returned to their \sim homes) re-spec-tive-ly \-le\ adv 1: as relating to

each 2: each in the order given
res-pi-ra-tion \res-pa-ra-shan\n1: an
act or the process of breathing 2: the physical and chemical processes (as breathing and oxidation) by which a living thing obtains oxygen and eliminates waste gases (as carbon dioxide) — re-spi-ra-to-ry \"res-pə-ra-to-e, ri-"spi-ra-\ adj — re-spire \ri-•spīr\ *vb*

res-pi-ra-tor \ res-pə-ırā-tər \ n 1 : a device covering the mouth or nose esp. to prevent inhaling harmful vapors 2

: a device for artificial respiration
respite \"res-pət\n 1: a temporary delay 2: an interval of rest or relief
re-splen-dent \ri-"splen-dənt\adj: shining brilliantly: gloriously bright : SPLENDID — re-splen-dence \-dons\ n

— re-splen-dent-ly adv re-spond \ri-spand\vb 1: ANSWER, RE-PLY 2: REACT $\langle \sim ed \text{ to a call for help} \rangle$ 3: to show favorable reaction $\langle \sim$ to

medication) — re-spond-er n re-spon-dent \ri-span-dent\ n : one who responds; esp: one who answers in various legal proceedings -- re-

spondent adj re-sponse \ri-spans\ n 1 : an act of responding 2: something constituting a

reply or a reaction responsibility \ri-ispan-sa-bi-la-te\ n, pl-ties 1: the quality or state of being responsible 2: something for

which one is responsible re-spon-si-ble \ri-span-sa-bal\ adj 1: liable to be called upon to answer for one's acts or decisions: ANSWERABLE 2: able to fulfill one's obligations: RE-LIABLE, TRUSTWORTHY 3: able to choose for oneself between right and LIABLE,

tiresome • toast

tire-some \-som\ adj : tending to bore ... : WEARISOME, TEDIOUS - tire-some-ly adv -- tire-some-ness n

tiero Brit var of TYRO tis-sue *ti-shü\n [ME tissu, a rich fabric, fr. OF, fr. tistre to weave, fr. L texere] 1: a fine lightweight often sheer fabric 2: NETWORK, WEB 3: a soft absorbent paper 4: a mass or layer of cells forming a basic structural material of an animal or plant.

tit \ tit\ n : TEAT
tit n : TITMOUSE Tit abbr Titus

ti-tan \"tit-on\n 1 cap: one of a family of giants overthrown by the gods of ancient Greece 2: one gigantic in size or power

ti-tan-ic \tī-"ta-nik\ adi: enormous in size, force, or power syn immense, gigantic, giant, colossal, mammoth

ti-ta-ni-um \tī-tā-nē-əm\n: a gray light strong metallic chemical element

used esp. in alloys

tit-bit \"tit-1bit\ var of TIDBIT
tithe \"tīth\ n: a 10th part paid or given esp. for the support of a church tithe vb — tither n

tit-il-late \"tit-"l-"at\ vb -lat-ed; -lat-ing 1 : to excite pleasurably 2 : TICKLE tit-il-la-tion \utit-2|-1a-shən\n

tit-i-vate or tit-ti-vate \"ti-tə-svāt\ vb -vat-ed; -vat-ing: to dress up: spruce up — tit-i-va-tion \u00e4ti-tə- va-shən\ n

ti-tle \"tit-"\ n 1 : CLAIM, RIGHT; esp : a legal right to the ownership of property 2: the distinguishing name esp. of an artistic production (as a book) 3 : an appellation of honor, rank, or of-fice 4: CHAMPIONSHIP syn designation,

denomination, appellation ti-tled \"tit-old\ adj: having a title esp. of nobility

title page n: a page of a book bearing the title and usu. the names of the au-

tit-mouse

ti-tra-tion \ti-tra-shən\n: a process of finding the concentration of a solu-tion (as of an acid) by adding small portions of a second solution of known concentration (as of a base) to a fixed amount of the first until an expected change (as in color) occurs

tit-ter \"ti-tor\vb: to laugh in an affect ed or in a nervous or half-suppressed

manner: GIGGLE — titter n
tit-tle \"tit-"\n: a tiny piece: JOT
tit-tle-tat-tle \"tit-"-1-"tat-"-1\n: idle talk

: GOSSIP — tittle-tattle vb tit-u-lar \ti-ch--lar\ adj 1: existing in title only: NOMINAL $\langle \sim$ ruler \rangle 2: of, relating to, or bearing a title $\langle \sim$ role \rangle

Tietus *tī-təs\ n — see BIBLE table tizezy *ti-zē\ n, pl tizzies : a highly excited and distracted state of mind

tk abbr 1 tank 2 truck
TKO \rte-rka-o\ n [technical knockout]: the termination of a boxing 2 toast n 1: sliced toasted bread 2

match when a boxer is declared unable to continue the fight

tkt abbr ticket

🔟 symbol thallium TLC abbr tender loving care

T lymphocyte n: T CELL Tm symbol thulium

TM abbr trademark
T-man \te-\man \ n: a special agent of
the U.S. Treasury Department
tn abbr 1 ton 2 town

TN abbr Tennessee tng abbr training

tnpk abbr turnpike
TNT \ute-(\utext{\upper})en-"t\u00e4\u00bb n : a flammable
toxic compound used as a high explo-

sive

to \to, \ti\ prep 1: in the direction of and reaching \(\delta \colon \sim \to \to \to \) 2: in the direction of: TOWARD 3: ON. AGAINST (apply salve ~ a burn) 4: as far as (can pay up ~ a dollar) 5: so as to become or bring about (beaten ~ death) (broken ~ pieces) 6: BEFORE (it's five minutes ~ six) 7: UNTIL (from May ~ December) 8: fitting or being a part of: FOR $\langle \text{key} \sim \text{the lock} \rangle$ 9: with the accompaniment of (sing ~ the music 10: in relation or comparison with $\langle \text{similar} \sim \text{that one} \rangle$ $\langle \text{won } 10 \sim 6 \rangle$ 11: in accordance with $\langle \text{add salt} \sim \text{taste} \rangle$ 12: within the range of (~ my knowledge) 13: conrange of (~ my knowledge) 13: contained, occurring, or included in (two pints ~ a quart) 14: as regards (agreeable ~ everyone) 15: affecting as the receiver or beneficiary (whispered ~ her) (gave it ~ me) 16: for no one except (a room ~ myself) 17: into the action of (we got ~ talking) 18— used for marking the following verb as an infinitive (wants ~ go) and verb as an infinitive (wants ~ go) and often used by itself at the end of a clause in place of an infinitive suggested by the preceding context (goes

of consciousness or awareness (came

hours after the accident>

TO abbr turn over toad \ tod \ n : any of numerous tailless leaping amphibians differing typically from the related frogs in having a shorter stockier build, rough dry warty skin, and less aquatic habits

toad-stool \-istul\ n : MUSHROOM; : one that is poisonous or inedible toady \'to-de\'n, pl toad-ies: a person who flatters in the hope of gaining fa-

vors: sycophant — toady vb to-and-fro \stu-en-fro\ adj: forward

and backward — to-and-fro n toast \tost\ vb 1: to warm thoroughly 2: to make (as bread) crisp, hot, and brown by heat 3: to become toasted

EXHIBIT 9

IEEE Std 100-1992

The New IEEE Standard Dictionary of Electrical and Electronics Terms

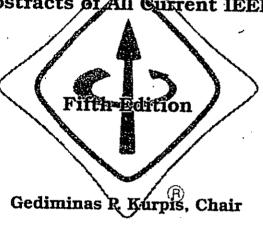
Fifth Edition Newly Revised and Expanded



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IEEE Std 100-1992

The New IEEE Standard Dictionary of Electrical and Electronics Terms [Including Abstracts of All Current IEEE Standards]



Christopher J. Rooth Palitor



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SH15594

nections being specified for the solution of a particular set of equations. See: computer program; problem board. 165-1977

computer equation (machine equation) (analog computers). An equation derived from a mathematical model for use on a computer which is equivalent or proportional to the original equation. See: scale factor.

computer graphics. (A) The branch of computer science concerned with methods of creating, modifying, or analyzing pictorial data. (B) The use of a computer in any discipline to create, modify, or analyze images. 610.6-1991

Computer Graphics Interface (CGI). (A) A computer graphics standard that provides a method for exchanging device-independent data between graphics systems or devicedependent parts of a graphics system. It is under development by the American National Standards Institute (ANSI) and the Interna tional Standards Organization (ISO), (By A method for exchanging device-independent data between graphics systems or device-dependent parts of a graphics system.

,610.6-199<u>∤</u>€ Computer Graphics Metaille (CGM) (A) Arc computer graphics standard that provides a method for recording graphical information. a metafile. It was developed by the American a metafile. It was developed by the American National Standards Institute (ANSI) and the computer output microfilm (COM) (computer International Standards Organization (ISO). (B) applications). The end result of a process that A method for recording graphical information in a metafile. 610.6-1991

computer input microfilm (CIM). The input to a computer process that converts data contained microform into machine-readable data.

610.2-1987

computer instruction (1). A machine instance computer performance evaluation (software), tion for a specific computer.

[20] [85]: Angengineering discipline that measures the (2) (software). (A) A statement in program in program and performance of computer systems and investiming language, specifying an operation of the statement of the improved. See also: system profile; values of the associated operands; for example, Move A to B. See also: instruction format; instruction set. (B) Loosely, any executable statement in a computer program.

610.12-1990

computer-integrated manufacturing (CIM) (computer applications). Use of an integrated system of computer-controlled manufacturing centers. The centers may use robotics, design automation, or CAD/CAM (computer-aided design/computer-aided manufacturing) technologies. See also: flexible manufacturing system. 610.2-1987

computer interface equipment (surge withstand capability). A device that interconnects a protective relay system to an independent computer, for example, an analog to digital converter, a scanner, a buffer amplifier.

C37.90-1978

computerized axial tomography (CAT). See: computed tomography. 610.2-1987

computer language. A language designed to enable humans to communicate with computers. See also: design language; query language; programming language. 610.12-1990

computer literacy. An understanding of the capabilities, operation, and applications of computers. 610.2-1987

computer-managed instruction (CMI) (computer applications). The use of computers for management of student progress. Activities may include record keeping, progress evaluation, and lesson assignment. See also: computer-based instruction. 610.2-1987

computer network (1) (general). A complex consisting of two or more interconnected computing units. [20], [85] (2) (data communication). An interconnection of assemblies of computer systems, terminals and communications facilities. 168-1956w (3) (software). A complex consisting of two or more interconnected computers. See: com-

puter numerical control (CNC). Numerical control in which one or more machines that profluce manufactured parts in in the state of are linked

converts and records data from a computer directly to a microform. 610.2-1987

output microfilmer (computer applications). A device for producing computer output microfilm. Syn: COM device.

throughput; utilization; workload model.

computer program (1) (general). A plan or routine for solving a problem on a computer, as contrasted with such terms as fiscal program, military program, and development program.

[2], [20], [85] (2) (analog computer). That combination of computer diagram, potentiometer list, amplifier list, trunk list, switch list, scaled equations, and any other documentation that defines the analog configuration for the particular problem to be solved. This term sometimes is used to include the problem patch board as well, and, in some loose usage, the computer program may be (incorrectly) used to refer solely to the program patch panel.

(3) (software). A sequence of instructions suitable for processing by a computer. Processing Case 1:05-cv-00314-GMS

may include the use of an assembler, a compiler, an interpreter, or a translator to prepare the program for execution as well as to execute it. See: assembler; compiler; computer; execution; instructions; interpreter; program.

(4) (programmable digital computer systems in safety systems of nuclear power generating stations). A schedule or plan that specifies actions that may or may not be taken. expressed in a form suitable for execution by a programmable digital computer. 7432-1982w (5) (computer terminology). A combination of computer instructions and data definitions that enable computer hardware to perform computational or control functions. See also: software. 610.5-1990, 610.12-1990

computer program abstract (software). A brief description of a computer program that provides sufficient information for potential users to determine the appropriateness of the program to their needs and resources.

610.12-1990

computer program annotation. See: comment.

computer program certification. See: certification.

computer program component (CPC),* See: computer software component. 610.12-1990 *Deprecated.

computer program configuration identification. See: configuration identification.

computer program configuration item (CPCI).* See: computer software configuration item. *Deprecated. 610.12-1990

computer program development plan. See: software development plan.

computer program validation. See: validation.

computer program verification. See: verifica-

computer resource allocation. The assignment of computer resources to current and waiting jobs; for example, the assignment of main memory, input/output devices, and auxiliary storage to jobs executing concurrently in a computer system. See also: dynamic resource allocation; storage allocation. 610.12-1990

computer resources. The computer equipment, programs, documentation, services, facilities, supplies, and personnel available for a given purpose. See also: computer resource 610.12-1990 allocation.

computer simulation. A simulation of the operation of a computer. See also: computerbased simulation. 610.3-1989

computer software component (CSC). A functionally or logically distinct part of a computer software configuration item, typically an aggregate of two or more software units.

610.12-1990

computer software configuration item (CSCI). An aggregation of software that is designated for configuration management and treated as a single entity in the configuration management process. Contrast with: hardware configuration item. See also: configuration item.

610.12-1990

computer system (software). A system containing one or more computers and associated software. 610.12-1990

computer time. See: time.

165-1977

computer typesetting (CTS). See: computer-610.2-1987 aided typesetting.

computer variable (1). A dependent variable as represented on the computer. See: time.

165-1977

(2) (machine variable). See: scale factor.

165-1977

computer word (1). A sequence of bits or characters treated as a unit and capable of being stored in one computer location. See: machine word. 1201, 1851 (2) (computer terminology). See: word.

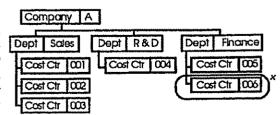
610.1, 610.5-1990, 610.12-1990

computing center. A facility designed to provide computer services to a variety of users through the operation of computers and auxiliary hardware and through services provided by the facility's staff. 610.12-1990

computing elements (analog computers). A component that performs mathematical operation required for problem solution. It is shown explicitly in computer diagrams, or computer programs. 165-1977

concatenate. To append one item to the end of another so as to form a single unit in a contiguous pattern. For example, if we concatenate 'AP' with 'PLE,' the result is 'APPLE.' Syn: catenate. 610.5-1990

concatenated key (data management). (A) A key derived from the concatenation of two or more keys. Syn: fully concatenated key; multifield key. (B) A concatenation of the keys for the first N segments found in a hierarchical path. For example, in the structure below, the concatenated key for segment x is "AFI-NANCE006." 610.5-1990



Concatenated Key

diametric rectifier circuit

342

dielectric power factor

diametric rectifier circuit. A circuit that employs two or more rectifying elements with a conducting period of 180 electrical degrees plus the commutating angle. See: rectifiction.

diamond winding (rotating machinery). A distributed winding in which the individual coils have the same shape and coil pitch. [9]

diaphragm (electrolytic cells). A porous or permeable membrane separating anode and cathode compartments of an electrolytic cell from each other or from an intermediate compartments for the purpose of preventing admixture of anolyte and catholyte. See: electrolytic cell. [119]

diathermy (medical electronics). The therapeutic use of alternating currents to generate heat within some part of the body, the frequency being greater than the maximum frequency for neuromuscular response.

dibit (data transmission). Two bits; two bihary digits. 599 1985w (2) (data management). Two bits: 640.5-1990

dichotomizing search (data management). A search in which an ordered set of its is partitioned into two parts, one of search is rejected, and the process is repeated in the accepted part until the search is completed. See also: binary search; Fibonacci search interpolation search.

dichotomy (mathematics of computing). A division into two classes that are mutually exclusive and dual in nature. For example, all zero and all nonzero, or all true and all false.

dichroic filter (fiber optics). An optical filter designed to transmit light selectively as making to wavelength (most often, a high-pass filter). See: optical filter.

dichroic mirror (fiber optics). A introduced to reflect light selectively according to wavelength. See: dichroic filter. 812-1984

dichromate cell. A cell having an electrolyte consisting of a solution of sulphuric acid and a dichromate. See: electrochemistry. [119]

dictionary. A list of data items and information about those items, used both to describe and to reference the items. See also: data dictionary; index; table. Contrast with: directory.

610.5-1990

dictionary/directory (data management). See: data dictionary; data directory. 610.5-1990

die (semiconductor). See: chip; semiconductor.

dielectric (surge arresters). A medium in which it is possible to maintain an electric field with little or no supply of energy from outside sources. [8] dielectric constant (1) (dielectric). That property which determines the electrostatic energy stored per unit volume for unit potential gradient. Note: This numerical value usually is given relative to a vacuum. See: dielectric heating.

54-1955w

(2) (antennas). The real part of the complex dielectric constant. 145-1983

dielectric dissipation factor. (A) The cotangent of the dielectric phase angle of a dielectric material or the tangent of the dielectric loss angle. See: dielectric heating. (B) The ratio of the loss index ento the relative dielectric constant e. See: relative complex dielectric constant.

286-1975w

dielectric filling factor (single-layer microstrip). See: filling factor. 1004-1987

diciectric filter. See: interference filter.

dielectric guide. A waveguide in which the waves travel through solid dielectric material.

See waveguide. [119]

dielectric heater. A device for heating normally insulating material by applying an alternating-current field to cause internal losses in the finaterial. Note: The normal frequency range is above 10 megaherty. See: interference. [43]

delectric tens. A lens made of dielectric material and used for refraction of radio-frequency energy. See: antenna; waveguide.

ticlestric loss (planar transmission lines). That contribution to the attenuation constant of appropagating mode on a planar transmission line that represents losses associated with the dielectric properties of the substrates (and overlays) materials involved, which may also the dielectric properties. 1004-1987

diel tric loss angle d (rotating machinery).

The harde whose tangent is the dissipation factor.

286-1975w

dielectric loss factor.* See: loss factor.
*Deprecated

dielectric loss filling factor (planar transmission lines). See: filling factor. 1004-1987

dielectric phase angle. (A) The angular difference in phase between the sinusoidal alternating voltage applied to a dielectric and the component of the resulting alternating current having the same period as the voltage. See: dielectric heating. (B) The angle whose contangent is the dissipation factor, or arc cot e"/e". See: dielectric dissipation factor; relative complex dielectric constant; dielectric heating.

dielectric power factor. The cosine of the dielectric phase angle (or the sine of the dielectric loss angle). See: dielectric heating. 286-1975w

65 I

instantaneous trip or suppression

instrumentation tool

introduced in the tripping action of the circuit

instantaneous trip or suppression (thyristor). The means to sense an overload and reduce the output current to zero, as fast as practicable. 428-1981

instantiation (software). The process of substituting specific data, instructions, or both into a generic program unit to make it usable in a computer program. 610.12-1990

instant of chopping (high voltage testing) (chopped impulses). The instant of chopping is the instant when the initial discontinuity

instant start fluorescent lamp (illuminating engineering). A fluorescent lamp designed for starting by a high voltage without preheating of the electrodes.

institutional design. Emphasizes reliability, resistance to wear and use, safety to public, and special aesthetic considerations, such as the "agelessness" of the structure. /24121990

instruction (1) (programmable digital computer systems in safety systems of nuclear power generating stations). A meaningful instruction trace. See: trace. expression in a computer programming language that specifies an operation to a digital instrument (1) (plutonium monitoring). A comguage that specifies an operation to a digital instrument (1) (plutonium monitoring). A comguage that specifies an operation to a digital instrument (1) (plutonium monitoring). A comguage that specifies an operation to a digital instrument (1) (plutonium monitoring). A com-

(2) (software) . See: computer instruction.

670.12-1990 🛣

(3) (BTL interface circuits). A binary datasis word shifted serially into the test logic defined by this standard in order to define its subse-1149.1-1990 *** quent operation.

instructional character. See: control charac-610.5-199Q_{.,.}

instructional game (computer applications). An instruction method employed by come com work and for more characteristics of ionizputer-assisted instruction systems in which a ingradiation or radioactive material. subject. Contrast with: question and answer interaction: simulation.

instructional simulation (modeling and simulation). A simulation intended to provide an opportunity for learning or to evaluate learning or educational potential; for example, a simulation in which a mock-up of an airplane cockpit is used to train student pilots. Syn: academic simulation; tutorial simulation.

instruction counter (software). A register that indicates the location of the next computer instruction to be executed. Syn: program 610.12-1990

instruction cycle (software). The process of fetching a computer instruction from memory and executing it. See also: instruction time.

instruction format (software). The number and arrangement of fields in a computer instruction. See also: address field; address format; 610.12-1990 operation field.

instruction length (software). The number of words, bytes, or bits needed to store a computer instruction. See also: instruction for-610.12-1990

instruction modifier (software). A word or part of a word used to alter a computer instruction. 610.12-1990

instruction repertoire (software). See: instruc-610.12-1990 tion set.

instruction set (software). The complete set of instructions recognized by a given computer or provided by a given programming language. Syn: instruction repertoire. 610.12-1990

instruction set architecture (software). An abstract machine characterized by an instruction set. See: abstract machine; instruction

instruction time (software). The time it takes a computer to fetch an instruction from memory and execute it. See also: instruction cycle.

610.12-1990

729-1983

espléte system destgned to quantify a particular type of lonizing radiation. N317-1980

(2) (radiation protection). A complete system designed to quantify one or more particular ionizing radiation or radiations. N323-1978 (3) (software). In software and system testing.

to install or insert devices or instructions into hardware or software to monitor the operation 610.12-1990 of a system or component. (4) (airborne radioactivity monitoring in-

strumentation). A complete system designed

N42,17B-1990

instrumentation (software). Devices or instructions installed or inserted into hardware or software to monitor the operation of a system 610.12-1990 or component.

instrumentation cable. A cable that carries low level electric energy from a transducer to a measuring or controlling device. It may be used in environments such as high temperature, high radiation levels, and high electromagnetic fields. An instrument cable may consist of a group of two or more paired or unpaired, shielded or unshielded, solld or stranded insu-789-1988 lated conductors.

instrumentation tool (software). A software tool that generates and inserts counters or other probes at strategic points in another program to provide statistics about program execution such as how thoroughly the program's code is exercised. See: code; execution; pro-729-1983 gram; software tool.

valid outside the allocating process and should 855-1985 not be passed between processes.

storage integrator (analog computer). An integrator used to store a voltage in the hold condition for future use while the rest of the computer assumes another computer control state. See: electronic analog computer.

610.5-1990

- storage life (gyro, accelerometer) (inertial sensor). The nonoperating time interval under specified conditions, after which a device will still exhibit a specified operating life and performance. See: operating life. 528-1984w
- light-amplifier (optoelectronic device). See: image-storage panel.
- storage location. An area in a storage device that can be explicitly and uniquely specified by means of an address. 610.5-1990
- storage medium. Any device or recording medium into which data can be stored and held until some later time, and from which the entire original data can be obtained.
- storage protection (computing systems). And arrangement for preventing access to storage for either reading or writing, or both.
- storage, reservoir (electric power systems).

 The volume of water in a reservoir at a swear time.
- storage schema. In a CODASYL database statements expressed in data storage definition. language that describe storage areas, stored records, and any associated indices and access paths supporting the records and sets defined by a given schema. See also: CODASYL 610.5-19**9**Q database.
- storage stack, See: stack.
- storage station (power operations) A hydro significant be stored for subsequent transmis-electric generating station associated with a station as a
- storage structure. (A) The manner in which data structures are represented in storage. (B) The configuration of a database resident on computer storage devices after mapping the data elements of the logical structure of the database onto their respective physical counterparts. Note: The relationships and associations that provide the physical means for accessing the information stored in the database are pre-610.5-1990
- storage surface (storage tubes). The surface upon which information is stored. See: storage 158-1962w tube.
- storage temperature (1) (power supply). The range of environmental temperatures in which a power supply can be safely stored (for example, -40 to +85 degrees Celsius). (2) (semiconductor device). The range of environmental temperatures in which a semiconductor device can be safely stored.

- (3) (light emitting diodes) (T). The temperature at which the device, without any power applied, is stored.
- storage temperature range. The range of temperatures over which the Hall generators may be stored without any voltage applied, or without exceeding a specified change in perfor-296-1969w mance.
- storage time (storage tubes). See: retention time, maximum; decay time; storage time.
- storage tube. An electron tube into which information can be introduced and read at a later time. Note: The output may be an electric signal and or a visible image corresponding to the stored information. 161-1971w, 158-1962w
- store (1) (electronic digital computers). (A) To retain data in a device from which it can be eppied at a later time. (B) To put data into a storage device. (C) British synonym for storage. Bee. storage. 162-1963
- (2) (data management) (software). (A) To place or retain data in a storage device. (B) To copy computer instructions or data from a register to internal storage or from internal storage to external storage. Contrast with: load (B); rettieve. Seg also: letch; move.
 - 610.5-1990, 610.12-1990
- 346-1973w store-and forward switching (data communication)? A method of switching whereby messages are transferred directly or with interim storage, each in accordance with its own Address. See: packet switching. 168-1956w
 - store-and-forward switching system (telephone switching systems). A switching system for the transfer of messages, each with its own address or addresses, in which the mes-Presabellan be stored for subsequent transmis-
 - An indicator that visibly shows that the stored energy mechanism is in the charged or C37.100-1981 discharged position.
 - stored-energy operation (power switchgear). Operation by means of energy stored in the mechanism itself prior to the completion of the operation and sufficient to complete it under predetermined conditions. Note: This kind of operation may be subdivided according to: (1) how the energy is stored (spring, weight, etc.), (2) how the energy originates (manual, electric, etc.), (3) how the energy is released (manual, C37.100-1981 electric, etc.).
 - stored logic (telephone switching systems). Instructions in memory arranged to direct the performance of predetermined functions in 312-1977w response to readout.
 - stored paragraph. See: boilerplate text. 610.2-1987

EXHIBIT 10



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Computer Press Association

computer typesetting

Computer Press Association \kəm-pyoo\tər pres' ə-sō-sē-ā`shən\ n. A trade organization of journalists, broadcasters, and authors who write or report about computer technology and the computer industry.

Computer Professionals for Social Responsibility \kəm-pyoo\tər prə-fesh\a-nalz fər so\shal raspon-sə-bil'ə-tē\ n. See CPSR.

computer program \kəm-py \overline{oo} tər pro gram\ n. A set of instructions in some computer language intended to be executed on a computer so as to . perform some task. The term usually implies a self-contained entity, as opposed to a routine or a library. See also computer language. Compare library (definition 1), routine.

computer-readable \kəm-pyōō tər-rē də-bl\ adj. Of, pertaining to, or characteristic of information that can be interpreted and acted on by a computer. Two types of information are referred to as computer-readable: bar codes, magnetic tape, magnetic-ink characters, and other formats that can be scanned in some way and read as data by a computer; and machine code, the form in which instructions and data reach the computer's micro-

computer revolution \kəm-pyoo'tər rev-ə-loo'shan\ n. The societal and technological phenomenon involving the swift development and wide-spread use and acceptance of computersspecifically single-user personal computers. The impact of these machines is considered revolutionary for two reasons. First, their appearance and success were rapid. Second, and more important, their speed and accuracy produced a change in the ways in which information can be processed, stored, and transferred.

computer science \kəm-py \overline{oo} \tər sī'əns\ n. The study of computers, including their design, operation, and use in processing information. Computer science combines both theoretical and practical aspects of engineering, electronics, information theory, mathematics, logic, and human behavior. Aspects of computer science range from programming and computer architecture to artificial intelligence and robotics.

computer security \kəm-pyoo\tar sə-kyər'ə-te\ n. The steps taken to protect a computer and the information it contains. On large systems or those

handling financial or confidential data, computer security requires professional supervision that combines legal and technical expertise. On a microcomputer, data protection can be achieved by backing up and storing copies of files in a separate location, and the integrity of data on the computer can be maintained by assigning passwords to files, marking files "read-only" to avoid changes to them, physically locking a hard disk, storing sensitive information on floppy disks kept in locked cabinets, and installing special programs to protect against viruses. On a computer to which many people have access, security can be maintained by requiring personnel to use passwords and by granting only approved users access to sensitive information. See also bacterium, encryption, virus.

computer simulation \kəm-pyooottər sim-yə-lashən\ n. See simulation.

computer system $\mbox{kəm-py} \mbox{$\partial \delta$' tər si'stəm} \ n.$ The configuration that includes all functional components of a computer and its associated hardware. A basic microcomputer system includes a console, or system unit, with one or more disk drives, a monitor, and a keyboard. Additional hardware, called peripherals, can include such devices as a printer, a modem, and a mouse. Software is usually not considered part of a computer system, although the operating system that runs the hard-.. ware is known as system software.

computer telephone integration \kam-pyoo\tar tel'a-fon in-ta-grā'shan\ n. A process allowing computer applications to answer incoming calls, provide database information on-screen at the same time the call comes in, automatically route and reroute calls by drag-and-drop, automatically dial and speed-dial outgoing calls from a computer-resident database, and identify incoming customer calls and transfer them to predetermined destinations. See also drag-and-drop.

computer typesetting \kəm-pyoo\tər tip set-eng\ n. Typesetting operations that are partially or totally controlled by computers. Partial control can involve the transmittal of text directly from the source to the typesetter, without a paste-up stage. Full computerization can include the digitization of all graphics, which would then also be transmitted directly to the typesetter and regenerated without paste-up.



em space en dash

PCs that allows for increasing memory beyond the Intel 80x86 microprocessor real-mode limit of 1 megabyte. In earlier versions of microprocessors, EMS bypassed this memory board limit with a number of 16-kilobyte banks of RAM that could be accessed by software. In later versions of Intel microprocessors, including the 80386 and 80486 models, EMS is converted from extended memory by software memory managers, such as EMM386 in MS-DOS 5. Now EMS is used mainly for older MS-DOS applications because Windows and other applications running in protected mode on 80386 and higher microprocessors are free of the 1-MB limit. Also called LIM EMS. See also expanded memory, protected mode. Compare conventional memory, extended memory.

- emulate \e'myob-lāt\\ vb. For a hardware or software system to behave in the same manner as another hardware or software system. In a network, for example, microcomputers often emulate mainframes or terminals so that two machines can communicate.
- emulation \e`myə-lā'shən\ n. The process of a computer, device, or program imitating the function of another computer, device, or program.
- emulator \e'myə-la'tər\ n. Hardware or software designed to make one type of computer or component act as if it were another. By means of an emulator, a computer can run software written for another machine. In a network, microcomputers might emulate mainframes or terminals so that two machines can communicate.
- emulsion laser storage \epsilon-mul'shan la'zar storage \in j\ n. A method for recording data in film by selective heating with a laser beam.
- enable \e-nā'b\\ vb. To activate or turn on. Compare disable.
- encapsulate \en-kap'sə-lāt'\ vb. To treat a collection of structured information as a whole without affecting or taking notice of its internal structure. In communications, a message or packet constructed according to one protocol, such as a TCP/

IP packet, may be taken with its formatting data as an undifferentiated stream of bits that is then broken up and packaged according to a lower-level protocol (for example, as ATM packets) to be sent over a particular network; at the destination, the lower-level packets are assembled, re-creating the message as formatted for the encapsulated protocol. In object-oriented programming, the implementation details of a class are encapsulated in a separate file whose contents do not need to be known by a programmer using that class. See also ATM (definition 1), object-oriented programming, TCP/IP.

- Encapsulated PostScript \en-kap`sə-lā-təd · pōst´ skript\ n. See EPS.
- encapsulated type \en-kap`sə-lā-təd tîp´\ n. See abstract data type.
- encipher \en-sī fər\ vb. See encryption.
- encode \en-kod \ vb. 1. In data security, to encrypt. See also encryption. 2. In programming, to put something into code, which frequently involves changing the form—for example, changing a decimal number to binary-coded form. See also binary-coded decimal, EBCDIC.
- encryption \en-krip'shan\ n. The process of encoding data to prevent unauthorized access, especially during transmission. Encryption is usually based on a key that is essential for decoding. The U.S. National Bureau of Standards created a complex encryption standard, Data Encryption Standard (DES), which provides almost unlimited ways to encrypt documents. See also DES.
- encryption key \en-krip shan ke\ n. A sequence of data that is used to encrypt other data and that, consequently, must be used for the data's decryption. See also decryption, encryption.
- end-around carry \end \(\pi\)-round k\(\text{ar}\)e\(\text{e}\) n. A special type of end-around shift operation on a binary value that treats the carry bit as an extra bit; that is, the carry bit is moved from one end of the value to the other. See also carry, end-around shift, shift.
- end-around shift \end`a-round shift\ n. An operation performed on a binary value in which a bit is shifted out of one end and into the other end. For example, a right-end shift on the value 00101001 yields 10010100. See also shift.
- en dash \en' dash\ n. A punctuation mark (-) used to show ranges of dates and numbers, as in



event-driven programming

Microsoft Windows, UNIX, and OS/2. In times past, programs were required to interrogate, and effectively anticipate, every device that was expected to interact with the program, such as the keyboard, mouse, printer, disk drive, and serial port. Often, unless sophisticated programming techniques were used, one of two events happening at the same instant would be lost. Event processing solves this problem through the creation and maintenance of an event queue. Most common events that occur are appended to the event queue for the program to process in turn; however, certain types of events can preempt others if they have a higher priority. An event can be of several types, depending on the specific operating system considered: pressing a mouse button or keyboard key, inserting a disk, clicking on a window, or receiving information from a device driver (as for managing the transfer of data from the serial port or from a network connection). See also autopolling, event, interrupt.

event-driven programming \n-vent\driv-n program-eng, \(\tilde{e}\)-vent\\n. A type of programming in which the program constantly evaluates and responds to sets of events, such as key presses or mouse movements. Event-driven programs are typical of Apple Macintosh computers, although most graphical interfaces, such as Microsoft Windows or the X Window System, also use such an approach. See also event.

exa-\eks'ə\ prefix Abbreviated E. A prefix meaning one quintillion (10¹⁸). In computing, which is based on the binary (base-2) numbering system, exa- has a literal value of 1,152,921,504,606,846,976, which is the power of 2 (2⁶⁰) closest to one quintillion.

exabyte \eks'a-bīt'\ n. Abbreviated EB. Roughly 1 quintillion bytes, or a billion billion bytes, or 1,152,921,504,606,846,976 bytes.

exception \eks-ep'shan\\ n. In programming, a problem or change in conditions that causes the microprocessor to stop what it is doing and handle the situation in a separate routine. An exception is similar to an interrupt; both refer the microprocessor to a separate set of instructions. See also interput

exception error 12 \eks-ep`shən âr-ər twelv'\ n.
An error created in DOS environments caused by

a stack overflow. This problem may be corrected by modifying the CONFIG.SYS file and editing the STACKS= entries.

exception handling \eks-ep'shən han`-də-lëng, hand'lëng\ n. See error handling.

exchangeable disk \eks-chanj ə-bl disk \ n. See removable disk.

exchange sort \eks-chānj sort \ n. See bubble sort.

exclusive NOR \eks-kloō`siv nor'\ n. A two-state digital electronic circuit in which the output is driven high only if the inputs are all high or all low. exclusive OR \eks-kloō`siv or'\ n. A Boolean operation that yields "true" if and only if one of its operands is true and the other is false, as shown in the table below. Acronym: EOR (E'or). Also called XOR. See also Boolean operator, truth table. Compare AND, OR.

а	b	a XOR b
0	0	0
0	1	1
1	0	1
ı	1	0

.exe \dot`E-X-E'\ n. In MS-DOS, a filename extension that indicates that a file is an executable program. To run an executable program, the user types the filename without the .exe extension at the prompt and presses Enter. See also executable program.

executable \eks \(\pi\-\text{-ky\overline}\) to, or being a program file that can be run. Executable files have extensions such as .bat, .com, and .exe. executable \eks \(\pa\-\text{-ky\overline}\) to b\\ n. A program file that can be run, such as file0.bat, file1.exe, or file2.com.

n. A program that can be run. The term usually applies to a compiled program translated into machine code in a format that can be loaded into memory and run by a computer's processor. In interpreter languages, an executable program can be source code in the proper format. See also code (definition 1), compiler (definition 2), computer program, interpreter, source code.

execute \eks'a-kyoot'\ vb. To perform an instruction. In programming, execution implies loading



reserved memory

a program and, as a result, normally cannot be used in assigning names to files, documents, and other user-generated tools, such as macros. Characters commonly reserved for special uses include the asterisk (*), forward slash (/), backslash (\), question mark (?), and vertical bar (1).

reserved memory \re-zərvd mem ər-ē\ n. See

reserved word \ra-zarvd\ ward\ n. A word that has special meaning to a program or in a programming language. Reserved words usually include those used for control statements (IF, FOR, END), data declarations, and the like. A reserved word can be used only in certain predefined circumstances; it cannot be used in naming documents, files, labels, variables, or user-generated tools such as macros.

reset button \real set but \rightarrow n. A device that restarts a computer without turning off its power. Compare big red switch.

resident font \rez`a-dant font \ n. See internal font.

resident program \rez`ə-dənt program\ n. See TSR.

resistance \rə-zi'stəns\ n. The ability to impede (resist) the flow of electric current. With the exception of superconductors, all substances have a greater or lesser degree of resistance. Substances with very low resistance, such as metals, conduct electricity well and are called conductors. Substances with very high resistance, such as glass and rubber, conduct electricity poorly and are called nonconductors or insulators.

resistor \rə-zi stər\ n. A circuit component designed to provide a specific amount of resistance to current flow. See the illustration.



Resistor. The bands indicate the resistance in obms, as well as tolerance (the margin of error from the amount of resistance indicated by the bands).

resize \re-sīz'\ vb. To make an object or space larger or smaller. Also called scale.

resolution \rez'a-100 shan\ n. 1. The fineness of detail attained by a printer or a monitor in producing an image. For printers that form characters from small, closely spaced dots, resolution is measured in dots per inch, or dpi, and ranges from about 125 dpi for low-quality dot-matrix printers to about 600 dpi for some laser and inkjet printers (typesetting equipment can print at resolutions of over 1,000 dpi). For a video display, the number of pixels is determined by the graphics mode and video adapter, but the size of the display depends on the size and adjustment of the monitor; hence the resolution of a video display is taken as the total number of pixels displayed horizontally and vertically. See the following table. See also high resolution, low resolution. 2. The process of translation between a domain name address and an IP address. See also DNS.

resolve \ra-zolv\\ vb. 1. To match one piece of information to another in a database or lookup table. 2. To find a setting in which no hardware conflicts occur. 3. To convert a logical address to a physical address or vice versa.

resource \re sors, ra-sors\ n. 1. Any part of a computer system or a network, such as a disk drive, printer, or memory, that can be allotted to a program or a process while it is running. 2. An item of data or code that can be used by more than one program or in more than one place in a program, such as a dialog box, a sound effect, or a font in a windowing environment. Many features in a program can be altered by adding or replacing resources without the necessity of recompiling the program from source code. Resources can also be copied and pasted from one program into another, typically by a specialized utility program called a resource editor.

resource allocation \rẽ'sors a-lə-kā'shən\ n. The process of distributing a computer system's facilities to different components of a job in order to perform the job.

resource data \re sors da \ta, ra-sors, dat a\ n. The data structures, templates, definition procedures, management routines, icon maps, and so forth associated with a particular resource, such as a menu, window, or dialog box. See also resource (definition 2), resource fork.



EXHIBIT 11

4/17/2006

What is computer? - A Word Definition From the Webopedia Computer Dictionary

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The #1 online encyclopedia dedicated to computer technology

..or choose a computer category.

choose one...

Gol F

Ö

Enter a word for a definition...

computer

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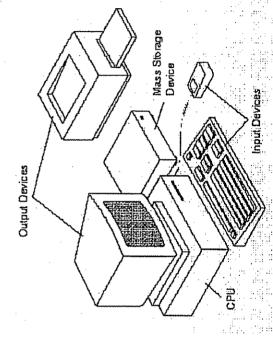
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A programmable machine. The two principal characteristics of a computer are:

Mardwaro Central

Suggest a Term Report an Error

Submit a URL

Talk To Us.

Internet.com

International Internat Lists, Internat Naws Internat Resou Developer

«Compare Prices

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ink to Us About Us

- It responds to a specific set of <u>instructions</u> in a well-defined manner.
- It can execute a prerecorded list of instructions (a program)

Modern computers are electronic and digital. The actual machinery -- wires, transistors, and circuits -- is called

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All

hardware, the instructions and data are called software.

general-purpose computers require the following hardware components:

- **memory**: Enables a computer to store, at least temporarily, data and programs.
- mass storage device.: Allows a computer to permanently retain large amounts of data. Common mass storage devices include disk drives and tape drives.
- input device: Usually a keyboard and mouse, the input device is the conduit through which data and instructions enter a computer.
 - output device: A display screen, printer, or other device that lets you see what the computer has accomplished.
- central processing unit (CPU): The heart of the computer, this is the component that actually executes nstructions.

efficiently. For example, every computer requires a bus that transmits data from one part of the computer to In addition to these components, many others make it possible for the basic components to work together another.

Computers can be generally classified by size and power as follows, though there is considerable overlap:

- microprocessor, a personal computer has a keyboard for entering data, a monitor for displaying information, personal computer: A small, single-user computer based on a microprocessor. In addition to the and a storage device for saving data.
- workstation: A powerful, single-user computer. A workstation is like a personal computer, but it has a more powerful microprocessor and a higher-quality monitor.
 - minicomputer: A multi-user computer capable of supporting from 10 to hundreds of users simultaneously.
 - mainframe: A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
- supercomputer: An extremely fast computer that can perform hundreds of millions of instructions per

E-mail this definition to a colleague.

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Types of Computers

3

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personal computer

supercomputer

software

workstation

microprocessor

mainframe

hardware

minicomputer

What is computer? - A Word Definition From the Webopedia Computer Dictionary

HP Business Store: Computers - Purchase computers online. Also find HP Compaq notebooks and desktops, HP printers, servers, handhelds, and storage solutions.

HP Home & Home Office Store: Desktops - Shop for HP Pavilion and Compaq desktop PCs at the official Hewlett Packard store. Find the complete selection of HP home and home office products.

For internet.com pages about **computer** CLICK HERE. Also check out the following links!

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Building Your Own PC 沙

What hard-core techies and companies like Dell and Compaq have been doing for years is what any computer user can learn how to do - build a computer from scratch. Let SE take you on a stroll through the park and ease the pain of building a DIY PC.

IEEE's Computer magazine

articles of interest to computing professionals, computer scientists and engineers. Monthly magazine received by all members of the IEEE Computer Society. Offers

Price Watch - street price search engine

manufacturer using a proprietary Price Watch Info-Link system, Users then see a date Offers a way to find prices on computer products (systems, CPU, memory, storage, networking, multimedia, etc.) from many manufacturers. Prices are entered by the and time posting with each product chosen.

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Logic Supply: Computers - Mini-ITX computer systems and components designed for embedded applications and applied computing.

GiobalSpec.com: Industrial Computers - Provides database of suppliers for Industrial computers. Includes catalogs, technical information, and supplier contact information.

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4/17/2006

What is computer? - A Word Definition From the Webopedia Computer Dictionary

Aberdeen: Desktop Computers - Online retailer of custom configured notebook and desktop computers.

Businesschairs.com: Computer Carts - Offers quality home and office furniture Including executive office chairs, tables and desks, computer carts and filing cabinets.

JupiterWeb networks:

Case 1:05-cv-00314-GMS

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graphics

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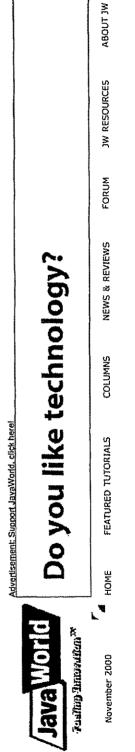
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EXHIBIT 12

C#: A language alternative or just J--?, Part 1



C#: A language alternative or just J--?, Part

What the new language for .Net and post-Java Microsoft means to you

Summary

Early this summer, Microsoft caused a huge media splash by preannouncing .Net, a new distributed application framework. Integral to .Net is a new language called C#, which initially appears highly similar to Java. This article, the first in a twopart series, compares C# to Java -- describing language features and design trade-offs -- and places C# in the context of Microsoft's broader .Net strategy. (3,500 words)

By Mark Johnson

- includes language features like single inheritance, interfaces, nearly identical syntax, and compilation to an intermediate format. * # (pronounced "C sharp") is Microsoft researcher Anders Hejlsberg's latest accomplishment. C# looks astonishingly like Java; it But C# distinguishes itself from Java with language design features borrowed from Delphi, direct integration with COM (Component Object Model), and its key role in Microsoft's . Net Windows networking framework.

C#. Next I will introduce C# with regard to its similarities to Java. Then I will discuss a couple of high-level, fundamental differences in scope between Java and C#. I close the article by evaluating the wisdom (or lack thereof) in developing large applications in multiple In this article, I will examine common motivations for creating a new computer language, and speculate on which might have led to languages, a key strategy for .Net and C#.

Currently, C# and .Net are available only as a C# language specification (not yet in final form), a "pre-beta SDK Technology Preview" for Windows 2000, and a quickly growing corpus of articles on MSDN. This article is based on those resources and some of my own speculation.

C#: A language alternative or just J-?, Part 1

Read the whole series, "C#: A Language Alternative or Just 1 --?";

- Part 1. What the new language for .Net and post-Java Microsoft means to you Part 2. An in-depth look into the semantic differences and design choices between C# and Java

Enter C#

multiple -inheritance rules, and so on. To flatten the learning curve, you design the language to look a great deal like C and C++. Then you add garbage collection, integrated thread interlocking, and dynamic linking, you throw out pointers, you allow only single inheritance but introduce the concept of an interface, and so on. Five years ago, Sun Microsystems introduced Java technology, which programmers: memory leaks, difficulty writing multithreaded applications, static linking, illegal pointer references, overly complex Imagine you're creating a new computer language, and you want to solve some of the traditional problems for C and C++ did those things and was platform-neutral, to boot,

addition to C#, the immensely talented Hejlsberg created the revolutionary languages Turbo Pascal and Delphi while at Borland, but also the counterrevolutionary Visual J++ while at Microsoft. C# and Java address many of the same problems with C and C++. In fact, In June 2000, Microsoft preannounced C#, which was designed expressly for its nascent .Net application development framework. In C# looks so much like Java that you could very easily confuse them. So why create C# at all? Is C# a "Java wannabe?" Since Microsoft obviously needs to deal with the Visual J++ developers it has left stranded, is C# just "Visual J--"; that is, Java with some new features and without the Sun logo, trademark, and narrow-eyed lawyers? Or is C# a technology that gives Windows developers the functionality of Java, could possibly compete directly with Java, and is useful

as if, having falled to corrupt the Java marketplace with proprietary extensions and strategic omissions, Microsoft has simply created a It's easy to be skeptical of C#, given its almost surreal similarity to Java in syntax, design, and even runtime behavior. It looks almost copy of Java, with a new name and a familiar market approach. This is at least not entirely the case: in the context of COM and .Net, C# may well have a place in the world of Windows development.

Motivation for creating a new language

Innovations in computer technology often change basic assumptions about programming and system development, and new languages arise to take advantage of new ideas. Special applications sometimes require new languages, which are tied intimately to the domain in which they operate. General-purpose languages, however, are usually created either to address existing languages' inadequacies, programming semantics, or to pull together advances from several other language projects to produce a more powerful language. A new computer language could be created as part of a research project, to explore new system architectures or new ideas in fill some business need, or both.

For example, C++ was created as an extension of the C programming language, and was originally called "C with classes." Though innovative and extremely powerful, C suffered from problems with scalability, code fragility, and memory management complexity, among others. C++ was created as an object-oriented approach to solving those problems.

C, and to a lesser extent C++, are widely considered to be highly portable, exemplified by the portability of the Unix operating system. C++ has been widely accepted as a system development language, but its "improvements" came at the cost of increased complexity.

layer of complexity and potential software flaws in the software layer where the application accesses system services. Anyone who has factor access differently to similar system services. The resulting "Impedance mismatch" (to appropriate a lousy metaphor) creates Portability between processors is different from portability between underlying operating system APIs. Different operating systems tried to create, for example, a GUI framework portable across platforms, understands this problem.

locked into a particular platform by an operating system vendor. Finally, the rise of the Internet and the ubiquity of network computing also addresses the business needs of consumers and companies who want to leverage their existing hardware assets, instead of being Java was created, in part, to address the issues of language complexity, memory management, and cross-platform portability. Java make cross-platform portability and airtight security even more important.

down interface to COM. The C and C++ languages alone require a great deal of skill to be used effectively and safely; Visual Basic has C#, announced by Microsoft but not yet released, addresses technical and business problems that Microsoft has recently encountered. (Distributed Component Object Model) adds yet another layer of difficulty. Thus, COM development has been mostly limited to highly trained (and expensive) Windows C/C++ programmers, and Visual Basic users who have taken the time to learn to use a stripped-Despite several attempts at simplification, the COM object programming framework has never been easy to use, and DCOM some object-oriented-like features, but is not a true object-oriented language.

When Java burst onto the scene in 1995, it grabbed an enormous amount of mindshare from Microsoft; people started to talk about a programmers came up to speed in record time. Java also provided cross-platform portability at the operating-system level and world where an operating system's underlying applications were irrelevant. Java looked so much like C and C++, existing addressed many problems that had limited the productivity of C and C++ programmers.

talk last year of a possible new Microsoft language called Cool, which Microsoft did not acknowledge. Rumor has It C# is that language. existing C and C++ programmer base. Unfortunately, Microsoft found that when it tried to extend Java in Visual J++ and tie it more agreement. As a result, Microsoft dumped its Visual 1++ product (as well as the developers it had attracted to the tool). There was Microsoft initially embraced Java as a language that solved problems with C and C++ while maintaining the training assets of the (Microsoft still sells Visual 3++, but there has not been a new release since October 1998 and Visual 3++ has no place in the .Net closely to the Windows operating system, Sun hit Microsoft with a lawsuit (see Resources) for violating the terms of its licensing platform. Java is being integrated into .Net by a separate vendor.)

So what kind of language has Microsoft created? The next section discusses C# in terms of its similarity to Java, since an understanding of Java is common to most JavaWorld readers.

C# and Java similarities

In the grand tradition of programming tutorials that began with C, my comparison of Java and C# begins with a familiar "Hello, world!" example. The code for this multilingual example appears in Table 1.

C#: A language alternative or just J-?, Part 1

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Java	#5
public class GlobalGreeting {	class GlobalGreeting (
public static void main	static void Main(string[]
(String[] args) {	args) {
System.out.println	System.Console.WriteLine
("Zdravo, zemlya!");	("Salut, le monde!");

Table 1. "Hello, world!" in four languages (Java, C#, Croatian, French)

is only one of its design goals. MSIL's design was influenced heavily by the design goal of language interoperability. (Learn more about language to which all .Net languages compile. MSIL could easily be called "Windows byte code"; however, just-in-time (JIT) compiling enclosing class. Both access a global name, system, that wraps access to system services. The similarities do not end with source code: Java, as you probably know, compiles to byte code -- operation codes in the instruction set of the Java Virtual Machine. C# The similarities between these two simple programs are obvious. Both encapsulate their main function, which is static, within an compiles to MSIL (Microsoft Intermediate Language, formerly known as portable binary format), an intermediate, assembly-like this in the section entitled Intermediate Language below.)

External reference

Usage of code external to a module is handled similarly in Java and C#. Java uses the import keyword to declare references to external names; C# provides the using keyword, as shown in Table 2.

Јаvа	C#
<pre>import java.lang.System; public class GlobalGreeting2 { public static void main (String args[]) { System.out.println</pre>	<pre>using System; class GlobalGreeting2 { static void Main(string args []) { Console.WriteLine("Salut, monde!"); }</pre>

http://www.javaworld.com/javaworld/jw-11-2000/jw-1122-csharpl_p.html

Table 2. The Java import keyword and the C# using keyword

not a lexical, level. This means the external reference is resolved at link time, as well as at compile time. This has special significance name. Neither C# nor Java use the C preprocessor construct #include, because the reference to the external module is at a logical, The two keywords work in a similar manner; both allow you to use names from another compilation unit without fully specifying the for C#, since it allows modules to subclass and operate with modules written in other languages.

context of symbol accessibility, while C# uses namespaces much like those of C++. The using keyword makes all names in the given without specifying the system namespace. (Compare Tables 1 and 2.) In the Java example, system is a class defined in java. Lang, java.lang.System.*; does not permit you to omit the System. from System.out.println as in C#, because System is a class, The difference between import in Java and using in C# is that Java has a concept of packages, which has a specific meaning in the namespace accessible to a module. So, the line using System; lets you access the .Net runtime namespace System. The System which is implicitly imported into every Java source file; therefore, the import statement is not needed. However, including import not a namespace. Thus, external names are referenced in a way that seems similar, but has different underlying mechanisms. This difference could be more confusing to programmers accustomed to Java than to C++ programmers who understand and use namespaces. Neither option is more expressively powerful; the two languages simply use different mechanisms to disambiguate namespace contains the static global method System.Console.WriteLine(), which is accessible as Console.WriteLine()

Control constructs

Simple statements in C# and Java look alike, since both languages descend primarily from C and C++. Table 3 presents common anguage constructs in C# and Java,

Statement	Java	#5
if/then/else	<pre>int i = 0; if (i == 0) { i = 1; } else { i = 2; }</pre>	<pre>int i = 0; if (i == 0) { i = 1; } else { i = 2; }</pre>
	<pre>int i = 0; switch (i) { case 0:</pre>	int i = 0; switch (i) { case 0: i =

http://www.javaworld.com/javaworld/jw-11-2000/jw-1122-csharp1_p.html

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C#: A language afternative or just J--?, Part 1

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switch	<pre>1; break; i = 2; break; default: i = -1; break;</pre>	<pre>1; break; case 1:</pre>
while	<pre>int i = 0; while (i++ < 10) { }</pre>	int i = 0; while (i++ < 10) { }
do/while	int i = 0; do { } while (i++ < 10);	int i = 0; do { } while (i++ < 10);
foreach	<pre>import java.util.Vector; public static int sum (Vector v) { int sum = 0; for (int j = 0; j < v.size(); j++) { Integer i = Integer i = (Integer) v.elementAt(j); sum = sum + i.intValue(); } return sum; } // Note: Java doesn't have "foreach". // This method uses java.util.Vector</pre>	<pre>using System.Collections; static int SumList (ArrayList theList) { int sum = 0; foreach (int j in theList) { sum = sum + j; } } return sum; }</pre>

http://www.javaworld.com/javaworld/jw-11-2000/jw-1122-csharp1_p.html

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	// to achieve the same end.	
break/continue	<pre>// Works with: for, while, // do, switch int i = 0; while (i++ < 10) { if (i < 5) continue; break; }</pre>	<pre>// Works with: for, while, do, // switch, foreach int i = 0; while (i++ < 10) { if (i < 5) continue; break; }</pre>
return	<pre>public void returnNothing() public void returnNothing() { return; } public int returnOne() { public int returnOne() { return 1; } }</pre>	<pre>public void returnNothing() { return; } public int returnOne() { return 1; }</pre>
new	Something s = new Something Something s ();	Something s = new Something ();
	<pre>try { throw new SampleException(); } catch (SampleException ex) { } finally { }</pre>	<pre>try { throw new SampleException(); } catch (SampleException ex) { } finally { } // However try { try { </pre>

 $http://www.javaworld.com/javaworld/jw-11-2000/jw-1122-csharp1_p.html$

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throw try/catch/finally		SampleException(); } catch { // Note argument optionality // Not only is the argument to // catch optional, but // the entire catch clause // itself is optional. // Also, C# has no throws keyword. } finally {
exclusive access	synchronized(this) { // do something }	lock (this) { // do something }
class definition	class Foo extends Bar { 	class Foo : Bar {
interface definition	<pre>interface IFoo extends IBar interface IFoo : { }</pre>	<pre>interface IFoo : IBar { }</pre>
interface Implementation	class Foo implements IFoo, IBaz { 	class Bar: IFoo, IBaz { }

Table 3. Constructs common to Java and C#

http://www.javaworld.com/javaworld/jw-11-2000/jw-1122-csharp1_p.html

As you can see in Table 3, most procedural statements in C# are similar, if not identical, to their corresponding statements in Java, and both languages are very similar to C++. There are a few differences worth noting:

integer values of the array theList. If a value in theList cannot be converted and assigned to an integer, an exception is thrown; in The foreach keyword: C# has a built-in construct, foreach, used for iterating collections. In Table 3, this keyword iterates over other words, the Iterated collection is not of a specific type, and therefore the foreach keyword is not type-safe at compile time. collection of ints. The expression (int j in theList) defines an iteration variable j, which is subsequently assigned to the

java.util.Vector as the collection. Vectors are not type-safe either, and the collection iteration relies on methods in the collection class, rather than on a language construct like foreach. In addition, Java's distinction between Integer objects and int primitives Java lacks the foreach keyword, of course, so one possible implementation of collection iteration appears in Table 3, using results in some typecasting that is unnecessary in C#.

catch clause is absent, the catch block is executed for any exception the try block throws. If the programmer doesn't care about the isn't used. I think the optional catch clause encourages programmers to be cavaller about ignoring error conditions, and therefore encourages poor programming practice. Compared to the absence of explicit exception declarations (the next item in this list), which I Empty catch clauses: In C#, the clause that follows the catch keyword and specifies which exception is caught is optional. If the contents of the thrown exception, omitting the catch clause alleviates the burden of defining a variable (the thrown exception) that consider a serious design flaw, this minor language feature is a venial sin at worst.

something goes wrong. (Regular readers of my columns are *not* invited to point out that I use this technique myself in sample code for my articles. I don't do it in "real" programs.) By not requiring explicit exception declarations in method signatures, C# values shorttry/catches with empty catch blocks. That technique is the software equivalent of putting pennies behind fuses: it works fine until No explicit exception declarations: In Java, a throws clause is mandatory for checked exceptions; in C#, throws doesn't exist. Novice Java programmers often complain that throws is tedious, and usually short-circuit their program exceptions by using term programmer convenience over program safety and correctness.

similar not only in syntax, but in architectural language design decisions, C#'s designers arrived at many of the same conclusions Interface and class definition syntax: C# replaces the Java extends and implements keywords with a colon. Java and C# about how to "fix" C++ that Java's designers had reached 5 years (or so) earlier.

superior alternative to multiple inheritance. Both provide a hierarchical naming scheme, though C#'s namespaces are a more C++-like solution than are Java packages. Both have a base object type, from which all other classes are, by definition, derived. And so on. This Both languages use automatic garbage collection for memory management (though C# allows access to pointer types and unmanaged (implemented in C++ as templates), which are clearly needed. Both allow only single inheritance, offering interfaces as an arguably does not necessarily mean that C# directly copies Java. Perhaps these decisions simply reflect the current consensus about what is memory in so -called "unsafe" code sections). Both have eliminated the delete operator. Neither currently has generic types, desirable in this type of language.

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before, former Visual 1++ programmers developing Windows applications will not have to choose between Java's ease of use and clean developers with a language as easy to use as Java, and provides Microsoft with a language, targeted directly at its platform, that it can control entirely. Interestingly, C# has been submitted to a standards body, a topic I will discuss further in Part 2 of this article. If C# and Microsoft would rather have a fanguage it can control than one controlled by the Java Community Process, C# provides Windows design and an API designed specifically for Windows. Writing to the Windows API sacrifices cross-platform compatibility in any case, earning Java (often in the form of Visual J++) will come up to speed on C# even more quickly than C++ programmers. As I noted Programmers accustomed to C++ will have no trouble understanding C#. Moreover, Windows programmers who invested time The similarity between C++ and C# is a great benefit to any organization with an existing training investment in C and C++. becomes standardized, it will be interesting to see how much control over C# Microsoft is really willing to relinquish.

C# and Java contrasts

C#'s most intriguing facets are its differences from Java, not its similarities. This section (and much of Part 2 of this series) covers features of C# that Java implements differently or entirely lacks.

Intermediate language

ğ Microsoft is very flexible about choosing when MSIL is compiled to the native machine code. The company takes care to say that MSIL interpreted," are simply marketing spin. Java byte code and MSIL are both intermediate assembly-like languages that are compiled to course, this has yet to be demonstrated, since C# and other MSIL-producing compilers have not yet been released. But the ubiquity is not interpreted, but compiled to machine code. It also understands that many -- if not most -- programmers accept the idea that Java programs are inherently slower than anything written in C. The implication is that MSIL-based programs (written in C#, Visual Basic, "Managed C++" -- a version of C++ that conforms to the CLS -- and so on) will outperform "interpreted" Java byte code. Of JIT compilers for Java make Java and C# relatively equal in terms of performance. Statements like, "C# is compiled and Java is machine code for execution, at runtime or otherwise.

COM integration

The biggest win for Windows programmers with C# may be its painless integration of COM, Microsoft's Win32 component technology. JScript, to provide yet a third COM component. The result is an environment in which components are network services, subclassable In fact, it will eventually be possible to write COM clients and servers in any .Net language. Classes written in C# can subclass an existing COM component; the resulting class can be used as a COM component too, and can then be subclassed in, for example, in any .Net language.

Microsoft's goal is to make component creation accessible from as many languages as possible, integrated within the .Net framework. learn a new language to use .Net: they could choose one they already knew. For more on COM integration, see Jacques Surveyer's excellent survey of C# in Dr. Dobbs Journal. (See Resources.) Haskell. Developers could choose different languages to solve different problems. More important, programmers would not have to Several vendors have already committed to creating. Net-enabled versions of programming languages as diverse as COBOL and

Best of breed or Franken-code?

The language interoperation goal certainly has its appeal. Imagine a system that uses "best of breed" languages for various tasks,

"empowering" every developer to use his or her favorite language, "leveraging" existing information assets, and so on. The idea of being able to use any language anywhere, and even use multiple languages within a particular inheritance hierarchy, sounds exciting. However, I'm not sure I'm interested in that sort of excitement.

achievement if Microsoft can make it work. But imagine actually working on a project of significant size in which multiple languages are C# will initially ship with Visual Studio 7, which may be able to provide source-level debugging for multiple languages, an impressive used in a single application. Consider these concerns:

- Would you want to manage that project? (Yeah, OK hotshot, you understand all those languages, because you're an überhacker. Let me rephrase the question: Would you want your current boss to manage that project?)
- How many languages are you using? Three? Six? Eight? What about that guy in your group who refuses to code in anything but APL, Haskell, or Prolog? There's a lot to like about those languages, but do you want to train everyone in your group to use them just so they can effectively debug the system? Or will Mr. Prolog have to sit in on all debugging sessions that use his code?
- Let's say you're using six languages -- are you single-sourced for any of them? What will you do if the only company that makes the compiler for one of your languages goes out of business? Or if the other vendor's language products are incompatible with your code because your developers used language extensions proprietary to the original, now unsupported, language version?
- What are the language version numbers for the n languages you're using to implement your system? If you think this question doesn't matter, think again. Languages may change more slowly than programs, but they do change.
- Q. What's more of a headache than a bug in a compiler?
 - A. Bugs in six compilers.
- proprietary Microsoft "managed extensions." C++ programmers will have to learn to use these Microsoft-specific extensions. The Microsoft's Common Language Subset, which describes language features necessary for .Net interoperation, places restrictions on languages that compile to MSIL. For example, Microsoft will provide Managed C++, which Is C++ with some additional same may be true for other languages.
- meeting your needs? Or some technology you desperately want or need doesn't integrate with .Net (possibly because Microsoft What if you decide you want or need to change platform vendors? What if you someday decide that Microsoft's products aren't ocks that technology out of .Net because it's a threat to other MS products)? Where will you go? And, more important, in this scenario, who decides where you go? (Hint: It's not you.)

With a little thought, I'm sure you can add to this list. The reality probably isn't quite that bad, though. Components written in multiple languages comprise many large data processing systems (the World Wide Web, for example). Most servers, and many applications, are extensible in multiple scripting and/or compiled languages. Used wisely, language mix-and-match in a project can provide needed flexibility and power. But only if the languages are selected for valid architectural reasons, not simply to "leverage" (salvage) creaky,

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poorly structured legacy code, to make use of undertrained entry-level programmers, or to satisfy managers cutting corners on training costs.

Conclusion

differences and design choices, and fill different technological and market niches. I'll also cover Microsoft's attempts to standardize C#, This article, the first in a two-part series, has provided a superficial overview of C#, focusing on its similarity to Java. The next article will cover C#'s language features, and demonstrate that C# and Java are actually quite different; they have many subtle semantic and what it may mean to Java. Stay tuned next month. Ent

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- Read Part 2 of "C#: A Language Alternative or Just J--?," Mark Johnson (December, 2000) for an in-depth look into the semantic differences and design choices between C# and Java:
 - "Bits, Flames, and Links," Bobby Schmidt (MSDN Online, Sept. 29, 2000) -- gets you started experimenting with C#, and http://www.javaworld.com/javaworld/jw-12-2000/jw-1221-csharp2.html ncludes a generous resource list:
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